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General Article

SOME PIG DISEASES*

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As I have given several papers on the above subject during the last two years, it is impossible to avoid repetition, but if ample discussion follows, my visit will be amply repaid.

Before dealing with certain of the diseases of the pig it may be of interest if I describe to you some of the methods of pig management in use in one of the big herds with which I am connected.

The primary object for which the herd was maintained was the production and sale of bacon pigs of about 200 lb. at approximately seven months old. Periodical sales of pedigree stock were arranged and also the marketing of porkers to suit existing markets. Porkers should be ready for sale between four and five months of age.

The breeding sows were chosen for length and fineness of shoulder with the object of producing a long, firm, well-fleshed pig with the correct proportion of lean flesh in relation to fat. The production of heavy pigs (250 lb. or over) is to be avoided for the following reasons: (1) to add weight to a heavy pig is expensive, as the animal takes more food, in proportion to the gain, to add to its weight, and (2) as the extra weight attained is largely fat and as there is little demand in modern times for fat bacon, it obviously follows that the heavy-weight animals are unsuitable for bacon and are usually sold for sausage making. Therefore the price per stone is less and the production of heavy-weight pigs uneconomical.

Two breeding systems are in existence:—

(*a*) Permanent breeding depôts.—Following service, the sows are turned out on grass plots. There is a large wooden shelter in each plot and the number of sows carried per acre is five to six. The sows remain on the plots until a week before farrowing when they are taken into the farrowing pens. They remain in the pens from four to 14 days after farrowing, the length of time depending on weather conditions, and each sow is moved into a sty with access to one-fifth of an acre of grass.

(*b*) Movable breeding depôts.—These consist of small movable pens (36 ft. by 27 ft.) with a portable wooden shelter in each. The pen accommodates either three dry sows or a sow and her litter. Castration is performed at about one month old and the pigs are weaned at eight weeks. Routine treatment for parasites is carried out as soon as possible after weaning—the majority being treated at nine or ten weeks old.

Both pedigree and cross-bred stores are kept in open field pens, the size of which is 36 ft. by 27 ft. When practicable, each litter is kept in a separate pen. The store period lasts from eight to 20 weeks.

At the age of 20 weeks the store pigs are brought into the fattening depôts, each of which contains about 300 pigs. These depôts are divided into yards, each yard accommodating from 25 to 30 animals. The pigs remain in the yards about one month, after which they are placed in sties for the final fattening.

Except for the final fattening the pigs are practically dry-fed throughout, the rations of meal and mineral mixtures (the composition of which I have already published) being as follows:—

Suckling Sows.—These receive about 112 lb. per week. This amount varies according to the size of the litter.

Steaming-up Sows.—These receive 42 lb. the week preceding farrowing.

Dry Sows.—28 lb. a week in summer and 35 lb. a week during the winter.

Store Pigs.—25 to 28 lb. per week.

Fattening Pigs.—45 to 50 lb. per week.

At the permanent depôts one man is employed for every 55 breeding sows, or for every 150-200 store pigs. In the fields one man and one horse are employed for every 40 breeding sows, or for every 200 store pigs. All pigs are ear-marked and, as far as possible, complete records are kept from birth onwards.

At this point it may not come amiss to state how strongly I advise every owner to retain his own boar. The practice of having a boar which is for general use in a village cannot be too strongly deprecated, first, because of the grave risk of infection, and secondly, because the sending of sows for service at a time when the boar is exhausted or overworked is a common cause of poor litters, in point both of numbers and lack of constitution in the offspring. The choice of a boar is all-important

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because while the purchase of an occasional bad or indifferent female is not likely to cause widespread damage in a herd, the use of a bad boar will very quickly characterise a herd with his faults. A boar should be chosen from a good herd, not necessarily a fashionable one; attention should be paid as much to the females of his family as to the males. Any animals with such defects as hernia, or retention of urine in the sheath, should be avoided as these defects are hereditary.

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It is my intention to deal with several diseases somewhat briefly in order to allow more time for the discussion that is to follow.

Swine Erysipelas.—I will commence with swine erysipelas, and I deal with this complaint first as it is my belief that a large number of cases of this disease are not recognised and therefore do not receive treatment early enough. Swine erysipelas is an infectious disease caused by *B. erysipelatos suis* which is found in the blood of affected animals (Hutyra and Marek).

The animals more commonly affected are fattening pigs of medium age, but I do not consider it rare to find this condition in either young animals or adults. I have had this view confirmed by laboratory examination in pigs as young as nine weeks old and therefore submit that it is fairly common in young animals. While the disease is most frequently met with during the summer months, that is from May until October, it may exist at any time of the the year; in my district we treat quite a large number of cases during the winter. One of two things is certain—either the disease is on the increase or veterinarians are becoming more proficient in its recognition.

Three common forms are found (1) septicæmic, (2) urticarial and (3) chronic. The septicæmic form is the most dangerous and presents the greatest difficulty in diagnosis, particularly in those cases where the outbreak is sporadic. Death ensues so rapidly that few changes in the organs are to be seen on *post-mortem* examination. It is certain that in a large number of sporadic cases only the following symptoms are present—high fever (105° to 108°), great prostration, pounding of the heart, and possibly discoloration of the skin, as are found in dealing with swine erysipelas. These cases are frequently diagnosed as chill, pneumonia, etc., but if a liberal dose of serum were administered at once I am sure many owners would be pleasantly surprised the next day. It is my opinion that in all cases of sudden death in which the *post-mortem* examination reveals septicæmia a long bone should be sent for laboratory examination.

The urticarial form is easy to distinguish and mild in its effect, although at the same time I strongly advise serum treatment of all affected and in-contact animals. The symptoms shown in "red soldier," a "diamond" disease, are high fever, prostration (varying in degree) and loss of appetite, partial or complete. Distinct red or purplish patches may be found on any part of the body but are most common on the neck, back, thorax, and the outside of the thighs. In black pigs while the discoloration is hard to distinguish, the tumefactions can be commonly felt.

The chronic form is encountered in animals that have recovered from an acute attack and is characterised by an attack of unthriftiness, a dirty condition of the skin and swelling of the joints, sometimes accompanied by lameness. The hock joints are most commonly affected and are often hot and painful. Skin lesions may persist and in some cases gangrene appears; this may be so extensive that skin from the loins forward is raised from the underlying tissue and portions of the ears and tail have been lost. On *post-mortem* examination endocarditis is commonly found, cauliflower-like growths being present on the valves.

A rough-and-ready method of diagnosis of the septicæmic form in the field may be made by scalding a recently dead pig. This frequently brings up the diamond-shaped patches on the skin. Once the disease is correctly diagnosed its control is simple and effective. Affected animals should be inoculated at once by a heavy dose of immune serum and in severe cases repeated in twelve hours; all other pigs should be given a protective dose.

On premises that have been badly affected it is wise to continue routine inoculation at least for a time and the method used by me is as follows: All breeding animals are inoculated by the simultaneous method, that is, serum one side and vaccine the other. In the case of store and bacon pigs, inoculation alone by serum appears to give a sufficiently lasting immunity until such time as they are sold for slaughter.

Parasites.—I propose to deal very briefly with parasites, as notes of mine on this subject have already appeared in print.

While numerous parasites infest swine, the type that causes the greatest damage is the ascarid worm. My chief reason for introducing the subject of parasites into this paper is because it has come to my knowledge that some members of the profession suggest that my dosage table for ol. chenopodium is somewhat heroic.

It is my experience (and it is considerable where this drug is concerned) that the pig offers greater resistance to chenopodium than do either sheep or cattle.

The doses I suggest have been used on thousands of pigs with complete safety and with excellent results. There is little doubt that the doses used by various druggists are inadequate.

My table of doses is as follows:—

Ol. Chenopodium

Age. Weeks.	Dose. Minims.	Age. Months.	Dose. Drachm.
8 ...	... 15	6 ...	... 1
10 ...	... 20	9 ...	... 1½
12 ...	... 25	12 ...	... 2
14 ...	... 30		
16 ...	... 35		

For "snuffles" in pigs due to *Strongylus paradoxus* I use ether meth. and ol. tereb. (1-20). One teaspoonful is injected slowly down each nostril by means of a syringe.

I have explained my method of administration so often that I do not propose to repeat it at this stage, but if any member wishes it I shall be pleased to do so when replying to the discussion.

Swine Fever.—I suppose that no paper on swine diseases is complete without some reference to this complaint being made. It has been suggested and possibly not without some justification, that practitioners do not tackle the problem of diagnosis of suspected outbreaks with sufficient determination and courage. I therefore cannot too strongly advise that we make ourselves thoroughly conversant with this disease and its differential diagnosis. This is necessary if we are to protect our clients from irritating and highly inconvenient restrictions and at the same time enhance our own reputations. I do suggest that when called in to an outbreak among swine where, following a close scrutiny of all the available evidence you are satisfied that swine fever does not exist, one should go ahead with a line of treatment and at the same time insist that no movements on or off the premises are made except for slaughter. When in doubt it is obvious that the outbreak must be reported.

Swine fever is a septicæmia caused by a filtrable virus affecting pigs of all ages and may be complicated by the presence of secondary organisms. One of the chief characteristics is that swine fever attacks pigs of all ages: this factor is important where differential diagnosis is concerned; further, it is usually characterised by a high morbidity and mortality.

On infected premises the common picture presented by ailing animals is loss of appetite, prostration, vomition and thirst. When standing, the animal is "humped up," appears weak (particularly behind) and the head and ears drop; discoloration of the skin is seen. Offensive diarrhœa is common and there is frequently a catarrhal discharge from the eyes and nose.

On *post-mortem* in cases of true swine fever the lymphatic glands throughout the carcase are almost invariably hæmorrhagic and hypertrophied. Petechial hæmorrhages are shown on the skin and subcutaneous tissue, the larynx, the lining membranes of the thoracic and abdominal cavities and their organs. The lesions found in the stomach and intestines entirely depend on the length of time the animal has been affected. Occasionally the stomach is only slightly reddened; on the other hand, extensive congestion and erosion may be seen. The lesions shown by the intestines may consist of hæmorrhages or be anything from bright red to almost black. Diphtheresis and ulceration may be present. While I am loth to mention ulceration —for in the past too much importance has been attached to it—and while I am even more nervous of suggesting a difference between ulceration found in swine fever and that found in other conditions, I have yet to see the so-called round follicular ulcer in anything but true swine fever. At the same time, I want to emphasise most strongly that ulceration in itself is not diagnostic of swine fever. Certain writers attach great importance to a history of abortion in a herd and while it may exist in herds affected with swine fever it is also commonly met with when dealing with other conditions. I have found it prevalent in herds in which swine erysipelas is present. In the light of our present knowledge it is indisputable that the person best qualified to arrive at a diagnosis of the disease is the experienced field worker.

Animal inoculation has several disadvantages: it is too slow, too costly, and further, not absolutely certain. Material forwarded for laboratory examination is frequently utterly useless by the time it arrives, therefore in an attempt to arrive at an early diagnosis all available data must be carefully examined and it is folly to come to a conclusion upon discovering a single lesion. The diagnosis must be based on: The symptoms, the length of time the disease has been in existence, the death rate, the age of animals affected, the *post-mortem* findings, the date of entry of fresh animals into the herd and a history of the premises.

Before concluding my remarks on swine fever I suggest that if any real headway is to be made in its investigation real team-work is essential. Neither the laboratory worker nor the practitioner is going to solve this problem single-handed, but a close co-operation between the two will give the greatest hope of its solution.

Necrotic Enteritis.—For some years considerable uneasiness has been shown by veterinarians as to the accuracy of diagnosis in outbreaks of suspected swine fever and more

latterly sharp division of opinion has occurred. The terms necrotic enteritis, paratyphoid, intestinal necrobacillosis, are synonymous. I consider that, in the aggregate, this disease is the cause of greater loss than is swine fever.

It has been demonstrated by several American workers that the causal organism is *Salmonella suipestifer,* with one or two other organisms playing a secondary part.

The pigs commonly attacked are those in the early store stage; it is rare to find a case in animals over six months old and personally I have never seen a case in an adult animal. The greatest number of casualties occurs in pigs between the ages of eight weeks and four-a-half months.

That it has a seasonal incidence cannot be denied; while outbreaks can and do arise during the summer months, the oubreaks are most frequent during the winter months, that is from October until the end of March. I have brought with me copies of diagrams illustrating seasonal incidence, which will be passed round for examination during the discussion.

During the investigation of a suspected case of necrotic enteritis, three salient features usually force themselves to the notice—first, the seasonal incidence; secondly, the age of the animals affected and, thirdly, low mortality and morbidity.

While the acute form does exist, it usually takes a chronic course. In the chronic form the symptoms shown are loss of appetite, dullness and constipation followed by diarrhœa. Later the affected animals appear unthrifty, lose flesh rapidly, and stand about with hanging heads, death finally taking place from emaciation and exhaustion. The skin has a dirty, scurfy appearance. The presence of conjunctivitis with the production of muco-purulent discharge and matting of the eyelids is rarely seen in necrotic enteritis.

Animals may recover after hanging on for a long time, but as growth is stunted, from the economic standpoint bad cases are better slaughtered. I have seen pigs following recovery that at eight months old, although fat, were no larger than pigs half this age.

Anæmia is almost invariably found in chronic cases. On *post-mortem* examination the lesions found are fairly constant. While changes in the glands throughout the body have been noticed, the glands chiefly affected are the mesenteric glands. These glands are hypertrophied, may be caseated or show œdema in varying degrees. Gastritis is common and varies in its intensity. Little microscopic change has been noticed in the kidneys and the petechial hæmorrhages associated with swine fever are never found. If hæmorrhages do appear in these organs they are minute in size and extremely few in number.

The lungs commonly show pneumonia or pleuro-pneumonia varying greatly in extent. The intestinal lesions are chiefly confined to the large bowel and show great variation. The intestinal abnormality may amount to no more than a slightly roughened appearance of the bowel wall, but in more advanced cases necrosis, diphtheresis and ulceration are found. Scars are commonly found where resolution has taken place and these vary from small circular areas to long scars extending as far as one to two-and-a-half inches down the length of the bowel. The intestines are so thickened in some areas as to be aptly described as "hose-pipe gut."

Factors of great importance in this disease are infestation by parasites, anæmia, dietetic errors—in fact, any condition which lowers the resistance of the body.

I have recently been dealing with an interesting outbreak of this disease. Losses had been taking place among young stores for some little time, but as the death rate was not high the owner had taken no steps to deal with it. Finally I was called in to investigate the outbreak and the history was as follows:—

Only young stores were affected.

All the affected animals were reared on the premises and no fresh animals were brought into the herd. The appearance of the animals was typical of the disease.

The stores were on quite a useful diet.

Ascarids—present in heavy infestation.

Anæmia—all sick animals showed this condition.

Post-mortem examination — gastro-enteritis, glands congested, etc.

Treatment.—Disposal of the manure and rats. Owing to the number of rats on the premises I insisted on the extermination of these.

Treatment for necrotic enteritis was undertaken. At the same time a long bone was sent for examination, as the history of the premises showed that swine erysipelas had existed previously. The satisfactory thing about this outbreak was that the pigs rapidly responded to treatment, which gave one the opinion that the diagnosis was correct. This was confirmed by the report from the Ministry laboratory, where a full examination had been carried out and a pure culture of *S. suipestifer* obtained. The test for swine erysipelas proved negative.

[Mr. Beckett at this stage gave his drug treatment, which consisted of the administration of iron preparations.]

Influenza of Swine.—Mention is made of this disease because I have seen more of it during the last two or three years and while it is not dangerous from the point of view of mortality, it is troublesome because of its apparently infectious nature. It is characterised by high fever, inappetence, prostration and coughing.

The illness as a rule does not persist for more than a few days and the animals soon begin to feed again although possibly the owner is worried because the animals still "snuffle." The death rate is extremely low and in my last two outbreaks only one death has taken place; *post-mortem* examination revealed broncho-pneumonia.

Treatment.—Ordinary routine treatment is all that is necessary.

Anæmia.—This condition has assumed considerable importance of late years, and while there are no figures available in this country showing the losses due to anæmia, it can be assumed with safety that these are heavy. In this country the study of anæmia has been chiefly confined to that occurring in sucking pigs and its study in older pigs has not received the prominence it deserves.

I stress this point, because it is my belief that the incidence of anæmia in store pigs is high, particularly under certain conditions; further, that this condition is the precursor of other diseases. The premises upon which one may expect to find anæmia in stores is that where a large number of animals are maintained on a small acreage. A common history is as follows: A small amount of ground is rented or purchased and new buildings are erected; the place is then heavily stocked. As a rule all goes well for a couple of years, then, owing to the impossibility of resting the land, it becomes to some extent pig-sick. One is probably informed by the owner that his pigs are not doing as well as they did and he is finding difficulty in maintaining the growth-rate in his stores. Upon examination the pigs appear pale, dirty, and the hair and skin lose their lustre. Later the animals appear "scabby" and fall away still further in condition. An examination of the blood will confirm one's opinion. As a blood count takes time and a busy practitioner has neither the time nor the technique to carry out this work satisfactorily, I use a hæmoglobin scale (Tallquist's pattern) and find it sufficiently accurate for work in the field. The method is extremely simple and books containing sufficient material to examine 150 samples can be obtained from Messrs. Baird and Tatlock, Ltd., for a modest sum.

Anæmia in store pigs can be treated easily and economically; really surprising results can be obtained in a very short time. At the conclusion of the paper I will tell you my method of treatment and am certain that, if you try it you will be more than pleased with the result. In sucking pigs anæmia appears more dangerous and treatment presents greater difficulty. It is characterised by a low hæmoglobin content of the blood, retarded growth, loss of vigour, and sudden death. As time is getting short and I have already discussed the *post-mortem* findings in papers quite recently, it is not proposed to describe them again now.

As the power of sow's milk as a body-builder is extraordinarily low, it necessarily follows that the margin of safety against the danger of anæmia in the young pigs is narrow. The age at which pigs are most commonly affected is from three to seven weeks, and the most critical period from two to four weeks. In consequence of the fact that anæmia in sucking pigs is entirely due to deficiency in the sow's milk, it will be readily seen that if the young survive the danger period and begin to feed themselves the risk of anæmia from this source is past. The incidence of anæmia is particularly high in herds where the sows are housed in modern buildings with concrete floors and are not permitted to run out-of-doors; the reason for this is not so much that the young animal obtains the influence of direct sunlight as that young pigs, even at a very early age, root and grub about outdoors and so obtain the necessary blood-forming elements from the soil. The work of the Rowett Research Institute and that of several American workers demonstrated that the feeding of iron salts to the sow did little to raise the hæmoglobin content in the blood in the young pigs, but clearly showed that when an iron salt is fed individually to the young pigs the anæmia is checked.

I carried out extensive feeding experiments in sows with the object of testing these statements and any good results were only obtained when the young pigs were old enough to eat some of the sow's ration. Therefore it will be seen that anæmia in sucking pigs can be prevented by giving the suckers access to pasture immediately after birth. In cases where this is not possible and anæmia makes its appearance, individual feeding of iron will be necessary.

Cystitis in Sows.—I would have liked to have described several other conditions in sows but have already exceeded the time at my disposal. However, before concluding, I desire to mention a condition in sows that has so far completely defeated me, and that is cystitis.

During the past few years cystitis in sows about a month after weaning has caused me considerable anxiety. These cases have arisen in animals turned out after weaning. The herdsman has noticed the passage of blood in the urine. These animals have been promptly treated and isolated, but in the majority of cases death has taken place in a few days. The condition of the bladder on *post-mortem* has been extraordinary; it has been extremely thickened and contracted. Specimens forwarded to the laboratory have demonstrated that the infection is an ascending one. I have some interesting data in connection with these cases but

the evidence is so inconclusive that at present I do not propose to publish it.

I shall be glad if members with experience of these conditions will give me their views.

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Discussion

Mr. F. C. Scott opened the discussion and thanked Mr. Beckett for his valuable paper, to which he had listened with great interest. Mr. Beckett was also to be congratulated on his work in the investigations in pig diseases at a time when we were all interested in this important subject. With much of Mr. Beckett's paper he agreed, but would like to ask a few questions. Was not swelling at the opening of the sheath in boars often due to cyst formation? In erysipelas, could pigs get intra-uterine infection? Was it wise to recommend an owner to keep gilts which had been treated with serum following an outbreak of disease in a herd? Did scalding in the manner suggested bring out the lesions in the skin in un-bled pigs? Did intravenous injection of swine erysipelas serum offer any advantages? In his opinion, it did not. At one time they mixed serum and vaccine before injecting and he would like to know if this was contra-indicated. He would also be glad to learn if small doses of serum were as effective as large doses.

In swine fever investigations he found that the lung type of infection was often predominant with no bowel lesions and at a later period of the outbreak bowel lesions were common. It was often common to see sows die of pneumonia. In what way did the hæmorrhages of the kidney differ in swine fever and swine erysipelas? He would also like to know Mr. Beckett's experience in the use of swine fever serum; he personally thought that it did more harm than good by producing carriers. In swine erysipelas outbreaks he had often noticed that the disease reached a climax, serum was given and the outbreak cleared up. He wondered if one sometimes got an active immunity following the injection of serum and natural infection. Did contributory causes such as over-feeding, journey, change of sheds, etc., play a great part? He hoped that Mr. Beckett would give more details of the anæmia test. He had often met with a condition in newly-weaned pigs fed on skimmed milk and sharps in which the animals went into convulsions. They responded to cod-liver oil treatment, pointing to a vitamin deficiency.

Mr. Beckett (who replied to each contribution to the discussion as it was made) said that the cysts in boars' sheaths were not as common as was retention of urine. He thought that erysipelas could be contracted *in utero*. He would be prepared to advise risking keeping in-contact gilts which had received serum. There might be occasional pigs which developed heart lesions. Scalding the skin of a dead pig brought up the lesions if they were there. In bad cases he repeated the dose of swine erysipelas serum twelve hours later in preference to administering it intravenously. He was not sufficiently experienced to say whether mixing serum and vaccine before injection had any detrimental effect, but he personally always used them separately. The dose of serum should be governed by the advice of the firm supplying it.

In regard to swine fever diagnosis, when pigs of all ages were being lost it rendered one most suspicious that swine fever was present. It was advisable to get a long bone such as the femur for bacteriological examination. The petechial hæmorrhages in swine erysipelas resembled those met with in swine fever, but those were not usually present in necrotic enteritis. The problem of "carriers" in swine fever was one requiring investigation. In swine erysipelas there might be an exaltation of virulence due to climatic conditions, but one noted that pigs which were about to be moved for slaughter often developed the disease. They had been receiving a very liberal ration of food and dietetic factors seemed to be associated with outbreaks of this disease. The anæmia test could be carried out by comparing the colour of the blood on blotting paper with standard colour obtainable in books from the usual instrument makers.

Mr. R. Hudson said he had been successful in getting rid of urine in the boar's sheath by making the opening of the sheath larger. He would like to know if large doses of swine erysipelas serum were likely to produce shock. In swine fever one often got pneumonia without bowel lesions and it would go through the herd like this until all the pigs had died, without a definite diagnosis being made. Abortion in sows was not specific of swine fever. In necrotic enteritis there was less tendency for the disease to spread. Some years ago one of his clients put rusty rings in a number of pigs and they all developed necrosis in the nose, bowels, and lungs, and only those pigs which had been rung became affected. He had often seen jaundice, diarrhœa and anæmia in young pigs due to iron deficiency. He had never met with cystitis in pigs but had often seen the condition in bitches and had used an injection of boracic acid and iodoform with success. He had met with a condition of paralysis in sows at weaning time. He would like to know what Mr. Beckett considered a good purge for pigs.

Mr. Beckett, in reply, said that the operation on the sheath of a boar might be followed with fatal results if a cyst or ulceration were present. He had never met with shock in using large doses of erysipelas serum. The use of serum alone in pigs destined for slaughter usually developed an immunity sufficient to protect them until slaughtered; in fact, he thought sometimes an active immunity could be produced in an infected place by the use of serum only. In inves-

tigating outbreaks of pig diseases swine erysipelas should be eliminated first of all. The clinical history was useful as a guide in differentiating between swine fever and necrotic enteritis, but collective evidence was always necessary. He agreed that abortion in sows was met with in other conditions in pigs besides swine fever. Necrotic enteritis was often confined to one pen. He thought the outbreaks of necrosis met with after ringing the pigs was not a *Salmonella suispestifer* infection (the cause of necrotic enteritis) but an infection with the necrosis organism. The *post-mortem* findings in iron deficiency were often those described by Mr. Hudson and the treatment was to turn the pigs out for exercise and dose with iron medicaments. In one such outbreak with which he had met, necrotic enteritis followed this train of symptoms. Young pigs should have exercise and care should be taken that the land did not become pig-sick. Bayer's Istin No. 2, given in oil or treacle was a useful purge for cattle or pigs. In swine fever outbreaks he advised the owner to get rid of every available pig on the premises in preference to using swine fever serum.

Mr. W. Collinson, having thanked Mr. Beckett for his paper, enquired if Mr. Beckett would inoculate young pigs one month old if the sow went down with erysipelas. He had met with cases of death in gilts which had been exposed to erysipelas infection and retained for breeding afterwards. He used the site at the back of the ear for making the inoculation. He wanted to know if Mr. Beckett had ever met with death from dosing with oil of chenopodium. He had used a purge and nux vomica electuary in cases of paralysis of sows at weaning and this was a condition which required good nursing as much as anything.

Mr. Beckett replied that he never inoculated young pigs less than eight weeks old with erysipelas vaccine nor sows within a month of farrowing. He would advise taking the risk of valvular disease of the heart with in-contact gilts for breeding. He injected all young pigs under the forearm, holding them in the same manner as for castration. He restrained large pigs by pushing them in a corner with a door and injected them behind the ear.

Major G. Green thought swine erysipelas caused more deaths than any other disease. One client of his had his pigs vaccinated twice a year regularly. This client maintained that his store pigs did much better after vaccination. He would like to know if pregnant sows were more resistant to swine fever infection than barren ones; he had often noted how many sows resisted the disease or recovered from it. Was there any measure other than the use of swine fever serum, which could be recommended for dealing with an outbreak of swine fever in a breeding herd?

Mr. Beckett said that he also had noted how many sows recovered, but he could only recommend that as many affected pigs as possible should be slaughtered. Swine fever was always a serious problem to deal with in a breeding herd.

Mr. T. Bowett expressed the opinion that in breeding, the sow, as well as the boar, should be carefully selected. No gilt from a small litter should be kept for breeding. He found that swine fever serum was of very little value, as he once carried out carefully controlled experiments to test it and it had shown disappointing results. Newly-weaned pigs with convulsions had been mentioned and he had seen a similar condition in young ducks fed on milk and sharps. They became paralysed and each day five or six died. He changed the diet to meat, biscuit, and maize meals mixed with bran. Recovery ensued immediately, showing the unsuitability of sharps as a food.

Mr. H. M. Salusbury, in thanking Mr. Beckett, observed that discussions of that sort and the interest Mr. Beckett took in this subject were bound to prove of value. In diagnosis, as the essayist had said, all the evidence procurable was necessary and *post-mortem* examinations should be made in detail. In meat inspection how commonly one saw some gastritis and pneumonia in apparently healthy pigs slaughtered for food.

Mr. W. Tweed said that he wished to express his thanks to Mr. Beckett for kindly giving them the benefit of a visit and the opportunity of hearing his views and discussing many of the problems met with in dealing with pigs with which most of them got some work to do. In his case the opportunity was afforded both to buy store pigs for Institutions and to follow them through until they were slaughtered for food. A great deal of knowledge and care were lacking in the rearing of store pigs. Very often after weaning the stores did not get sufficient food, which gave them a set-back at that age and left unthrifty pigs. In other words, they were half starved and developed pneumonia, anæmia, and other conditions.

He thought Mr. Beckett had done good work in stressing the incidence of necrotic enteritis in young pigs. In carrying out *post-mortem* examinations on pigs to any extent one was certain to come across the condition sooner or later. He had met with it on several occasions and there was great satisfaction in knowing how to recognise it. He would be inclined to place pneumonia as one of the most common conditions in pigs; in fact, he had seen pneumonia in fattening herds cause enough loss through deaths and unthriftiness to justify slaughter of all the pigs, disinfection of the premises, and starting afresh. Whether pneumonia was a form of swine erysipelas or not he was not prepared to say, but in some cases endocarditis was associated with the condition. There was a field here for further research work.

In the control of pig diseases in general he was struck also by the small part played in many cases by the veterinary practitioner and much unnecessary loss to owners could be avoided if owners would obtain professional advice. He would like to hear if Mr. Beckett had any suggestions as to how the veterinary practitioner's services could be better employed.

Mr. Beckett, in reply and in conclusion, stated that considerably more interest in pig diseases was being taken by the profession to-day. He stressed the importance of careful diagnosis and said that the closest co-operation between the practitioner and the veterinary bacteriologist was the first line of defence in the control of pig diseases. He considered that the present policy of reporting dead pigs to the police and they in their turn reporting to the Ministry without the practitioner being called in, had caused the present lack of interest in pig diseases and unnecessary irritation and loss to pig owners. The law should be such that all dead pigs should be reported and the cause of death investigated by the practitioner and the onus should be on the practitioner to inform the Ministry if he suspected swine fever. Many pig owners never reported deaths in pigs, through lack of confidence and the fear of restrictions

BRAXY-LIKE DISEASES OF SHEEP

Agricultural Research Council's Scheme

We reproduce below the text of correspondence which has passed between the Agricultural Research Council and the National Veterinary Medical Association in connection with the request received by the Association from the Council for the assistance of members of the N.V.M.A. in carrying out an investigation into braxy-like diseases of sheep.

* * * * *

(I) From the Administrative Secretary of the Agricultural Research Council to the General Secretary, N.V.M.A.: dated January 21st, 1935:—

I am directed by the Agricultural Research Council to inform you that their Committee on the Braxy-like Diseases of Sheep are anxious to obtain as much information as possible on the distribution, extent, and economic importance of the acute diseases of sheep caused by the pathogenic sporulating anærobic bacteria.

The extent of these diseases in many districts is unknown, the farming community seldom having sought veterinary advice regarding acute and fatal diseases of sheep. It is now realised that in many cases the true nature of these diseases can only be ascertained and their diagnosis accomplished with reasonable accuracy by laboratory examinations. The collection of suitable material for these examinations is often not an easy matter to arrange, owing to the difficulty the practitioner may have in finding the time and opportunity to make *post-mortem* examinations.

The Council, who have consulted with the Ministry of Agriculture and Fisheries on this matter, will therefore greatly value any assistance which the veterinary practitioners may be able to give to their Committee in the collection of material and information. They appreciate the greater value of these when obtained personally by the veterinary surgeon; but, owing to the inherent difficulties of collection, they consider that it may frequently be necessary to ask the farmer to collect and forward material and information himself. The farmer, however, should approach his veterinary surgeon for personal instruction on the nature of the diseases in question and for guidance in the collection and despatch of material to the laboratory.

It is proposed that the detailed bacteriological studies connected with the examination of material and the more important outbreaks of disease should be undertaken in England by the Institute of Animal Pathology, Cambridge, and in Scotland by the Animal Diseases Research Association, Moredun, Edinburgh. In England, however, it is considered that a subdivision of the country into areas, each served by a veterinary laboratory capable of undertaking preliminary bacteriological examinations and working in collaboration with the Institute of Animal Pathology, Cambridge, would prevent over-centralisation with possible congestion of work. It is hoped that the laboratories of the Veterinary Advisers will be included among the area laboratories referred to above. The Veterinary Advisers have been approached through the Ministry of Agriculture and Fisheries and have expressed their willingness to collaborate. The work will begin as soon as possible.

In order to encourage the provision of material and information it may be considered desirable for lectures to be given in suitable districts so that the purpose of the investigation may be brought to the notice of sheep farmers and that farmers may be encouraged to co-operate. These lectures could be arranged through the agency of local Agricultural Organisers and delivered by a veterinarian attached to one or other of the laboratories participating in the scheme. It is hoped that the veterinary practitioners, wherever possible, will participate at these lectures and bring the information now available regarding the diseases in question to the farmers' notice and point out to them how they may furnish their very essential help.

In districts where lectures are given or enquiries made, the local practitioners will be informed regarding these matters and their co-operation will be sought.

Two memoranda are enclosed dealing with the anærobic bacterial diseases of sheep. The one marked "A"* is suitable for distribution among the veterinary surgeons and the other, marked "B," for distribution among the farmers.

The Council and their Committee will be grateful for any comments or suggestions your Association may wish to make on the working of the scheme as outlined in this letter and in the enclosed memoranda, and for any assistance you may be able to give through your members.

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being placed on them. It would then be a matter of educating one's clients in the prevention of further loss and taking immediate steps in conjunction with our veterinary laboratories to make an accurate diagnosis. Our Advisory Officers in each area could be of much value to practitioners if they were trained bacteriologists with whom the practitioner could easily get in touch and consult. There was to-day in their practices severe competition from medicine vendors going round the country offering to treat animals. If that was not closely watched it would have serious consequences and it behoved each practitioner to take an interest in their activities and endeavour to combat them by every professional means.

* See page 424.—*Editor.*

The Council's Committee will, of course, be happy to arrange, so far as possible, for the communication to your members of the results of the examination of any material which your members may be good enough to supply.

. . . . .

(II) From the General Secretary, N.V.M.A., to the Administrative Secretary, Agricultural Research Council: dated February 5th, 1935:—

I have laid your letter of January 21st, Ref. A.R.C. 161, and enclosures concerning certain diseases of sheep caused by anærobic bacteria, before the appropriate Committee of this Association.

I am to thank you for consulting the Association in regard to the scheme as outlined in that communication and the accompanying memoranda, and to say that the Association is pleased to note that a determined effort is to be made to solve the various problems of causation and prevention of these diseases.

Although the Association cannot agree that the farming community seldom have sought veterinary advice regarding acute and fatal diseases of sheep, it assures the Agricultural Research Council that it will do all in its power to facilitate this inquiry in the directions in which its assistance is desired. The Association is sure that its members will do all they can to help collect and forward material whenever possible, and to co-operate in other ways, such as, for instance, by participation in lectures.

The Association has little objection to the farmer sending in material to laboratories *when it is impossible* for the veterinary surgeon to be called in, but it is thought that this practice should not be unduly extended, for it is obvious that the farmer will tend to send all carcases to the laboratory if he thinks he will thereby receive free advice and learn the cause of disease; this, you will admit, would be regrettable and outside the intention of the scheme.

The Association also requests that arrangements should be made for the results of such examinations and any further advice to be communicated to the farmer by his veterinary surgeon and not by the laboratory concerned. The adoption of such a procedure would, it is felt, further the liaison between laboratory and field workers.

The Association likewise wishes to express its willingness to encourage its members to take part, in collaboration with the research officers, in experimental field measures for the prevention of these diseases, and it ventures the earnest hope that when effective measures of prevention are discovered the application of these measures will be restricted to the veterinary profession, for it must be realised that the uncontrolled and unscientific administration of biological products will not, in the end, be to the best interests of the stockowner.

(III) From the Administrative Secretary of the Agricultural Research Council to the General Secretary, N.V.M.A.: dated March 11th, 1935:—

I am directed by the Agricultural Research Council to refer to your letter of the 5th ultimo, and to express their gratification that the National Veterinary Medical Association is willing to co-operate with the Council's Committee on Braxy-like Diseases in Sheep to the fullest possible extent. The Council will be glad if you will convey their thanks to the Association. A copy of your letter has been communicated to the Secretary of the Council's Committee, who will bring the observations of your Association upon the proposed scheme to the notice of the members of the Committee and others concerned in it.

The Committee on the Braxy-like Diseases in Sheep met the Veterinary Investigation Officers on the 11th ultimo, and discussed with them the proposed working of the scheme for the collection of information regarding the acute diseases of sheep caused by the pathogenic, sporulating, anærobic bacteria, which was outlined in my letter of January 21st.

At this meeting it was apparent that there had been some uncertainty in the minds of the Veterinary Investigation Officers concerning the views held by the Committee on the question of further investigations on the ætiology of lamb dysentery, particularly as recognised prophylactic methods were employed by many veterinary practitioners.

A few years ago the vaccination of the ewes or the inoculation of the lambs with immune serum apparently gave satisfactory results and, had this desirable condition of affairs been maintained, further investigation on lamb dysentery would not have been contemplated, except in so far as it was necessary to trace the cause of fresh outbreaks of the disease in districts where hitherto it had been unknown. Unfortunately, it is realised that in recent seasons prophylactic inoculations against lamb dysentery have not been uniformly successful and that, in certain instances, the methods of immunisation have been inadequate to control the disease.

It is very desirable, the Council's Committee feel, that the cause or causes of these failures, which may be due to variations of the causal micro-organism, should be studied and determined.

It is hoped, therefore, that members of your Association may be willing to take advantage of any facilities offered by the area laboratories and by the Institute of Animal Pathology, Cambridge, for studying outbreaks of lamb dysentery, especially where a breakdown of immunity has

occurred, by forwarding information and suitable material for examination, or by advising area laboratories where best to obtain material.

* * * * *

Memorandum "A."

A.R.C. 666/M. 75.

Agricultural Research Council

Committee on Braxy-like Diseases in Sheep

A Note on the diagnosis of Braxy and certain other anærobic infections of sheep.

The attention of investigators is drawn to the review of the literature on the above-mentioned diseases which has been drawn up by the Committee (A.R.C. 281/A. 166). It is well known that in this country, in some parts more particularly than in others, considerable numbers of deaths among sheep occur annually after a period of illness which is quite short, many of the animals being found dead after appearing perfectly healthy a few hours earlier. Although it is recognised that a history of this kind is quite consistent with infection with one or other of the sporulating anærobes, no data are available on which to base even an approximate estimate as to what proportion of the total losses are due to this or other causes. In districts where a particular anærobic disease is of common occurrence, there is perhaps a tendency to ascribe to it an undue number of cases, whilst in other parts suspicion is often cast on the presence of any plant which it is thought may be poisonous, or the losses are explained away on other equally unsatisfactory grounds. It is hoped, therefore, to obtain as much reliable information as possible regarding the incidence among sheep of infections caused by the various anærobic bacteria. One of the chief difficulties experienced by all investigators in this field is that of obtaining material in a suitable state for examination, which it is generally agreed must be carried out immediately after death and preferably on subjects killed for the purpose, if satisfactory results are to be obtained. As the period of illness is short and the symptoms somewhat indefinite, progress depends very largely on arousing the interest and securing the co-operation of the sheep farmer.

Since anærobic bacteria produce their effects by virtue of their power to elaborate potent exotoxins, a feature of all cases on *post-mortem* examination is the presence throughout the organs of the body of changes which are referable to toxæmia. Where the toxin is formed within the alimentary canal, as in the condition termed "infectious entero-toxæmia," these are the only lesions constantly present, but where actual tissue invasion takes place there is, in addition, at the site of multiplication of the organism, a lesion of a more specific character, as, for example, in the wall of the fourth stomach in braxy, in the subcutis and muscle in wound infections and in the liver in black disease. Between these two types lamb dysentery occupies an intermediate position in that tissue invasion is never very extensive and cases approximating to one and the other may be found to occur in a single outbreak.

The diagnosis of diseases which present a characteristic local lesion is relatively straightforward, for, provided that subjects suitable for examination are obtainable, it merely entails the isolation and identification of the causal organism which is usually found in the tissues in a state of purity.

Braxy.—The bacteria invade the wall of the fourth stomach and produce typically a hæmorrhagic and necrotic focus of varying size in the mucous membrane, with œdema of the submucosa or a more diffuse inflammation which may involve almost the whole of the mucous membrane. The small intestine may or may not show localised areas of inflammation. The peritoneal fluid is in excess and changes in the other organs are those of toxæmia. *Clostridium septique* may be isolated from the peritoneal fluid, the œdema of the submucosa, and usually, except in very early cases, from the heart blood and internal organs.

Black Disease or Infectious Necrotic Hepatitis, with which the bradsot of Germany is probably identical, is characterised by the presence in the liver of necrotic foci usually not exceeding one or two in number, varying in size up to 2 or 3 cm. in diameter, roughly circular in outline, sharply defined, of a yellowish-white colour and surrounded by a zone of venous congestion several centimetres wide. There may, in addition, be signs of comparatively recent fluke invasion of the capsule. The mucous membrane of the abomasum may show patchy congestion of varying intensity and a few small hæmorrhages on its surface, but does not present the typical appearance described in true braxy. The serous cavities contain an excess of straw-coloured fluid, and marked distension of the pericardial sac is said to be a striking feature of the disease.

The only situation in which *C. œdematiens* is constantly present is the liver lesion, and it has only rarely been isolated from other parts of the body.

Although typical black disease has not been observed in this country, it is of interest to note that the isolation of *C. œdematiens* from sheep material has been recorded in four cases by McEwen, and it is therefore desirable to bear in mind the possibility of the occurrence of infection of sheep by this organism even though typical liver lesions may not be apparent.

Wound Infection.—Infection of sheep arising as the result of wound contamination by anærobic bacteria, may occur in lambs by way of the unhealed umbilicus or after docking and castration and in older animals following shearing or parturition. The appearance of the lesions is usually suggestive of their real nature, and the organism most frequently concerned is apparently *C. chauvœi*, though there is no doubt that *C. septiquæ* and *C. welchii* may also give rise to fatal infection under these circumstances.

Infectious Entero-toxæmia.—The use of this term, which was originally applied by Bennetts to a disease of sheep in Western Australia, may be conveniently extended to include the condition known as "struck" which occurs in the area of Romney Marsh and also the so-called "pulpy kidney" disease. In these cases death is caused by the absorption of toxin formed within the small intestine by one or other of the type of *C. welchii* which under certain conditions, that cannot at present be defined, are able to multiply very rapidly in that situation. The bacteria themselves do not regularly invade the body tissues and although they may gain access shortly before death, are only found in very small numbers. The *post-mortem* appearance therefore is that of toxæmia. In cases of "struck," there is also evidence of enteritis and peritonitis. The mucosa of the small intestine shows a varying degree of congestion which may be very acute and accompanied by ulceration. There are intense injection of the peritoneal vessels, multiple sub-peritoneal hæmorrhages and an excess of pale yellow fluid which is slightly turbid and may be blood-stained. This disease, which has so far been reported to occur only on Romney Marsh, is caused by *B. paludis* (*C. welchii*. Wilsdon type C.)

The lesions observed in cases of "pulpy kidney" disease are very similar to the above. The disease appears to be widespread in this country and is probably responsible for considerable losses especially amongst comparatively young lambs. It may, however, affect sheep of all ages and also the goat. Acute cases are invariably fatal, usually within a few hours, but there is some evidence to show that mild cases may occur, manifested only by slight dullness followed by diarrhœa which passes off after a few days. On *post-mortem* examination, one finds, as in "struck," that the peritoneal vessels and especially those of the mesentery are congested, but the peritoneal fluid is usually only slightly in excess. The mucosa of the small intestine and to a lesser extent, that of the fourth stomach, is usually congested in parts. In some cases this may be barely appreciable, but in others large areas are intensely reddened and œdematous and their contents blood-stained. There is, however, no definite ulceration. The large intestine also is sometimes involved, but rarely to the same extent. The mesenteric glands are swollen and œdematous and may show hæmorrhages. The appearance of the kidney is often quite striking. The organ feels tense within its capsule, and its surface when viewed through the latter shows a peculiar blotchy appearance. When the capsule is removed, it is seen that the darker-looking areas are due to intense congestion of the small blood vessels on the surface which stand out prominently in the form of a network. On section the vessels throughout the cortex are seen to be very congested, and hæmorrhages may be present. The consistence of the organ is softer than normal and becomes progressively more so the longer the period elapsing between death and *post-mortem* examination. The pericardial sac contains an excess of fluid and is often tightly distended. Sub-pericardial and sub-endocardial hæmorrhages are very commonly present and may be quite extensive. The pleura show petechiæ. Some degree of congestion of the lungs is an almost constant feature and when marked is accompanied by œdema giving rise to a frothy exudate in the air passages. The causal organism is *B. ovitoxicus* (*C. welchii*. Wilsdon type D).

In the present state of our knowledge, the diagnosis of infectious entero-toxæmia is based primarily on the demonstration of the presence of *C. welchii* toxin in the intestinal contents, and this for obvious reasons is too uncertain a method to be entirely satisfactory. The preliminary filtration which it entails is troublesome owing to the nature of the material to be dealt with, and if the latter is diluted sufficiently to allow of its ready passage through the usual bacterial filters, the toxin may be too dilute to be demonstrable by animal injection.

Collection and Filtration of Material.—As a routine measure it is best to take a composite sample of contents from various levels of the small intestine. The results obtained by Montgomerie appear to indicate that in cases of "pulpy kidney" disease the toxin is often present in the ileum in greater concentration than elsewhere, whilst McEwen has recorded that it may be abundant in the abomasum in the case of "struck." In this disease it has also been demonstrated in the peritoneal fluid. If the material cannot be dealt with immediately or has to be transported for any distance, it should be shaken up with 3 per cent. of chloroform in a tightly stoppered container. After dilution with 1 or 2 parts of normal saline the material is centrifuged for 1 hour at about 3,000 r.p.m. and the supernatant fluid passed first through paper pulp or a Seitz K disc and afterwards through a Seitz E.K. or other bacterial filter under a low pressure. It is then tested for toxicity by animal inoculation. The mouse is the animal of choice, and it is permissible to administer quantities up to 1 c.c. intravenously. If the filtrate proves to be toxic, a rough idea of its potency is thus obtained, and one then

attempts to ascertain its probable type by titrating it against antisera prepared from various types of *C. welchii*. In a suspected case of "struck" the neutralising powers of sera of types A and C (according to Wilsdon's grouping) would be tested in the first place and for "pulpy kidney" types A and D. Mice are inoculated with mixtures of toxin and antitoxin which have been standing for one hour at room temperature, and filtrate with and without serum is inoculated as a control. In this way the desired information as to the existence of one or other of these toxins is usually obtained and the case classified accordingly.

The Committee will welcome results from those who feel able to collaborate in obtaining information of this nature even if the investigation is not extended beyond the point already indicated, but where possible it is desirable to obtain confirmation of the type or types of *C. welchii* present in the intestine by the isolation and identification of the organisms themselves, for in view of the relationship which obtains between the toxins of the various types included in the *C. welchii* group, this is likely to yield more exact information. For instance, in dealing with intestinal filtrates from lambs suspected of lamb dysentery, and which it may be proposed to test owing to the absence of typical lesions, three alternatives at least are theoretically possible, namely, that the toxin might be neutralised (*a*) by Type C antitoxin, (*b*) by Type D antitoxin or (*c*) only by a mixture of C and D and yet it might be found on examination that the strain of *B. welchii* present in each case was actually of Type B (Lamb Dysentery type). This may, in fact, be of practical importance, since hardly anything is known at present regarding this type as a cause of infection in sheep except in the very young.

From the investigation of suspected cases in as many areas as possible, it is hoped to collect useful information regarding the incidence of entero-toxæmia of bacterial origin, and it may perhaps be mentioned that where the history of the case is suggestive of this condition, the presence of other factors such as heavy parasitic infestation of the alimentary tract, or the suspicion that a poisonous plant may have been eaten, should not be seriously considered until the presence of a bacterial toxin has been excluded. Moreover, it may be necessary to examine more than one animal before this can be done with safety.

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Suggestions for obtaining more Information and Material from the Field

The Institute of Animal Pathology, Cambridge, should function as the principal centre for research in England and Wales, and the Moredun Institute, Gilmerton, should function in a similar capacity for Scotland. Each country should be divided into as many separate areas as possible, each area having its own veterinary laboratory which will be responsible for the collection of information in that area and for the diagnostic work and field immunisation experiments carried out in the area. These area laboratories should work in co-operation with the principal centres of research for their respective countries. As far as possible, the area laboratories should follow common methods for the diagnosis and prevention of disease. Information should also be collected in as standardised a manner as possible and not less than once a year it should be submitted by the laboratories to the Committee for their consideration.

As far as the scheme is concerned, elaborate, detailed bacteriological studies need not be undertaken by area laboratories, but there should be nothing in the scheme which would limit the scope of any independent investigation undertaken by any laboratory. Area laboratories, however, should be in a position to decide when detailed bacteriological work was required and be able to forward material and information to the principal laboratory where the detailed studies would be completed. The bacteriological work carried out by area laboratories would consist chiefly in examining intestinal contents for the presence of bacterial toxins and making primary bacteriological examinations and collections of material from tissues or body fluids where this was advisable.

In England the veterinary advisory centres should be approached and asked to co-operate in the scheme, each centre being responsible for its specific area. Any veterinary laboratories in the country capable of co-operation should be welcomed in the scheme.

It is probable that the principal laboratories would have to instruct area laboratories on the type of investigation and work required, but this should be accomplished without much difficulty. Later, where the reports from area laboratories indicated that disease is prevalent in any particular area, the field officer should be seconded for service in that area.

Were a scheme of the above nature agreed upon, the character and purpose of the investigations should be made as widely known as possible amongst agriculturalists, in order that a supply of information and material may be obtained. Information regarding the types of the disease under investigation, and the help which sheep owners could give, could be made available by veterinary practitioners, veterinary advisory officers and agricultural advisory officers.

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very large part by impressing on his clients the necessity for their help, by obtaining the necessary specimens and by co-operating with the laboratory workers in their attempts to elucidate the somewhat difficult problems which they are undertaking.

The Veterinary Record

April 13th, 1935

BRAXY-LIKE DISEASES OF SHEEP

ELSEWHERE in this journal is published the correspondence in connection with investigations into braxy-like diseases of sheep which has passed between the Agricultural Research Council and the N.V.M.A. It will be gathered from a perusal of this correspondence that it is the desire of the Council that there should exist a full collaboration between the workers carrying out these investigations and members of the N.V.M.A., especially those who practise in sheep-raising districts.

Disease plays a big part in the economy of the sheep-raising industry and, though within recent years concentrated efforts have been made by groups of laboratory workers to gain knowledge regarding their cause and prevention, and with successful results, it has been felt that more effort still may be necessary for a full understanding of their extent and exact nature. The Agricultural Research Council, in its general purview of diseases of animals, set up several committees to enquire into special groups of diseases—one of which deals with the braxy-like diseases of sheep. The committee has as its Chairman and Secretary, Professor Mackie (Edinburgh) and Dr. A. D. McEwen (Wye) respectively, while its members consist entirely of members of the veterinary profession with special knowledge of diseases of sheep.

"Braxy-like diseases of sheep" includes conditions caused by spore-bearing anærobic organisms to the pathogenic action of which sheep seem to be specially susceptible. This group of diseases has received much attention both in this country and abroad, and it is claimed that the mortality in sheep caused by such infections is high, especially in certain districts. At the present time there is a considerable amount of knowledge available on the subject. All diseases in this group are not caused by the same micro-organism. Because of the scanty information concerning the incidence of this group of diseases as it occurs in the various sheep-raising areas, it is very essential that some accurate knowledge is forthcoming, and to this end, the Agricultural Research Council through its special committee has set itself the task of ascertaining in as exact a manner as possible, the extent of types of the diseases in question and their distribution. The committee in its enquiry will make use of the results of the important investigations which have already been carried out (see Memorandum A) and will doubtless make new observations of value in their further work. Included in the survey is lamb dysentery. It has become necessary to review the condition termed "lamb dysentery," for it has been shown fairly conclusively that the term "lamb dysentery" may embrace diseases the etiology of which is somewhat complicated.

In order to obtain the maximum amount of knowledge, the committee of the Agricultural Research Council must have the co-operation of sheep farmers, their veterinary surgeons and laboratory workers in the various sheep-raising districts. Sheep farmers have always shown a strong desire to assist in disease investigations and much of the success of the investigations will depend on their readiness to co-operate by placing their experience before the committee and by providing sick and dead animals for investigation purposes. Veterinary practitioners are much more in touch with sheep farmers than was the case some years ago. Many sheep farmers make a practice of consulting their veterinary surgeons concerning their various difficulties, especially in connection with disease, and thus the veterinary practitioner can be of the greatest possible value to the committee in reporting the occurrence of losses among sheep and arranging with the sheep farmers to send material to the laboratories for investigation purposes.

It is in the laboratories that the true diagnosis can be made, for special tests and examinations which can only be carried out in a laboratory specially equipped for the purpose, are necessary before the exact nature of the disease affecting the sheep can be ascertained. The committee have sought the aid of the veterinary investigation officers, for it is realised that much of the investigation work and the diagnosis can be carried out by them in their own laboratories. The veterinary investigation officers, many of whom are keenly interested in sheep disease investigations and have already studied successfully some of the problems, have expressed their desire to co-operate in the scheme and are now making observations in their districts. In addition to the work done at these laboratories, more detailed work on the material available will be carried out by the Institute of Animal Pathology, Cambridge, and the Animal Diseases Research Association, Edinburgh.

By carrying out such a scheme, it is reasonable to anticipate that within a few years, there will be available more accurate knowledge of the types of diseases affecting sheep and their extent and distribution in this country, and further, from the knowledge accruing from the investigations, successful methods of prevention for the various conditions, may be elaborated.

To ensure the production of results wholehearted collaboration is necessary and in this respect the veterinary practitioner can play a

(*Concluded at foot of column 2, previous page.*)

Clinical Communications

AN UNUSUAL CASE IN A TERRIER PUPPY

A. C. HUME, M.R.C.V.S.
WEYBRIDGE

The subject of the following article was a nine-months-old pedigree West Highland Terrier puppy.

Professional advice was first sought on this animal showing signs of what was believed to be distemper or a chill. Upon examination, symptoms of the usual kind were noted, *viz*: purulent discharge from the eyes and nose, cough, accelerated respirations and diarrhœa.

The above symptoms abated with treatment in about ten days with the exception of the diarrhœa which ceased only after prolonged medication. This, however, also cleared up, the animal regaining its normal appetite and good spirits, and towards the end of three weeks it was considered convalescent and showing no obvious hindrance to complete recovery.

The latter appeared to have occurred, the dog leading a perfectly normal life until three weeks later when advice was again sought.

This time it was reported that the appetite was again in abeyance, marked loss of condition had taken place, the diarrhœa had returned and that the abdomen seemed very swollen and tense.

On palpation two fairly hard objects could be discerned in the abdominal cavity, but owing to the tense condition of the muscles their exact position and relation to adjoining organs could not be determined with any certainty.

To render diagnosis more certain it was suggested that the dog should be removed to hospital and a narcotic administered. This being agreed to, nembutal was given and the afore-mentioned objects could easily be felt in association with the small bowel.

An experimental laparotomy exhibited a remarkable condition of the abdominal cavity. Two neoplasms were found to be involving portions of the small intestine. In addition, the serous coat of almost the entire length of the small bowel was studded with small, round caseous patches almost the size of a grain of wheat.

The case being considered hopeless, the subject was destroyed and part of the neoplasm sent to the Pathological Department of the Royal Veterinary College.

The resultant report proved interesting, inasmuch as tubercle bacilli were found to be present, indicating what surely was a very unusual condition to be found in a young dog, in which tuberculosis is considered to be of rare occurrence.

In summing up, it might be suggested that the case was unusual in two respects: firstly, that a tumour growth of any kind should be found in such a young dog, and secondly, that the growth should be found to be tuberculous.

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TUBERCULOSIS OF THE HIP JOINT IN A CAIRN TERRIER

J. F. D. TUTT, F.R.C.V.S.
WINCHESTER

Subject.—Cairn Terrier (male). Twelve months old.

History.—The terrier was noticed to be lame a few days before advice was sought in November, 1934. This was ascribed to a possible slip whilst out walking with its owner.

Symptoms.—When first seen, there were no symptoms other than lameness affecting the right hip joint. The leg was carried, but there was no manifestation of pain on extension, flexion, rotation, or abduction. For some weeks afterwards there were times when the dog walked practically normally and it was not until late in February of this year that marked pain was evidenced when the limb was extended, and what appeared to be a callus could, for the first time, be felt on the inside of the limb. My assistant (Mr. J. K. Kearney, M.R.C.V.S.), under whose charge the case had been since the start, suggested to me that he would like an X-ray examination and arrangements were made with Mr. Ede, of Epsom, to carry this out.

X-ray Examination.—Mr. Ede formed the opinion, on examining the films, that it was a case of tuberculosis of the hip, but as the condition was rare in the dog, he took the films to Professor McCunn, who very kindly examined them, and he unhesitatingly confirmed the diagnosis. The owner being still dubious, the films were shown to a friend of mine (Mr. James Troup, F.R.C.S., of Winchester) who at once formed the same opinion.

Treatment.—At the start, massage with liniment and taking out after two weeks, on a short lead, was prescribed. Later, on my advice, the dog was brought two or three times a week to the surgery, where electrical treatment and massage was carried out by my assistant.

Remarks.—The owner has had the dog since it was three months old. It has never had a day's illness beforehand. Forcible abduction of the limb with plaster setting for 24 months being out of the question, the only course open appears to be destruction. The owner is debating about this, as beyond atrophy of the muscles and a more or less rigid joint, the dog appears in the best of health.

TUBERCULOSIS OF THE HIP JOINT IN A CAIRN TERRIER

Abstracts

[**I.—On the Formation of the Chorion in Twin Pregnancy in the Mare.** Keller, K. (1934.) *Wien. tierärztl. Mschr.* *21.* 15. 453-456. (7 refs. 1 diag.)

II.—On the Death of a Fœtus in Twin Pregnancy in the Mare. Benesch, F. (1934.) *Wien. tierärztl. Mschr.* *21.* 15. 457-458.)]

The first article draws attention to the undesirability of twin pregnancy in the mare. The foals produced are diminutive in size, and, if they survive, seldom develop the same physique as single foals. The risk to the mare is also greater.

A mare slaughtered at the 7th month of pregnancy possessed two fœtuses, one weighing 9.8 kgm. and the other 5.4 kgm. The areas of the placentæ were 7,000 sq. cms. and 3,500 sq. cms. respectively.

Twin fœtuses in a case of abortion weighed 11.5 and 3.5 kgms., and the area of the placenta of the lighter fœtus was only one-fifth that of the heavier.

In a third case, one twin (born living) weighed 37 kgm., and the corresponding chorion occupied one horn and the body of the uterus. The other twin, born dead, weighed 26 kgm. and its corresponding chorion occupied only one uterine horn, and had grown into the other one in the manner of an invagination. They were not joined together firmly, and, histologically, the distinction between them was very clear.

A fœtus with a small chorion, as in the cases mentioned, may die in consequence of lack of adequate nutrition, and become mummified.

In the second article, the record is given of a case in which one twin fœtus died some months before the birth of the other at full time.

A seven-year-old mare conceived on July 6th, 1933, after prolonged veterinary treatment. In December, 1933, the udder swelled and contained a milky secretion. On May 23rd, 1934, she gave birth to a recently dead, non-putrid fœtus. It was then found that the uterus contained also a mummified fœtus, and this was removed manually without difficulty. The mare made a non-febrile recovery.

The size of the mummified fœtus suggested that it had died after about 25 weeks' development, that is, at the time when the milk secretion appeared the previous December.

E. W. A.

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[**The Development of Cæcal Impaction in the Horse.** Gratzl, E. (1934.) *Wien. tierärtzl. Mschr.* *21.* 16. 481-494. (5 photos. 11 refs.)]

The author is of the opinion that cæcal impaction in the horse is due to a hypertonic condition, not an atonic condition, of the cæcal walls.

Eighty-three per cent. of his cases (actual number not stated) showed symptoms of pain, yet in only 31 per cent. was the impaction extensive. The pain could not therefore be due to stretching of the cæcal walls, and must be caused by spasmodic contractions. In his experience, the harder the impacted material, the greater was the pain. The caecal wall was firm, painful on palpation *per rectum*, and the muscular bands were tense.

Stimulants such as aloes, pilocarpine, arecoline, neucesol, and lentin have proved useless and sometimes dangerous. Good results have been claimed by the use of antispasmodics such as atropine.

In a relaxed condition of the cæcum, the impaction would commence first at the apex and involve the base last. *Post-mortem* examinations, however, have shown that the opposite is the case. No case of cæcal impaction has been observed by the author, in which the base was not involved, whereas the apex was frequently empty.

By administering *per os* a suspension of animal charcoal in water, and tracing its subsequent distribution, it has been found that the normal course of the cæcal contents when returning from the apex, is along the greater curvature, into the overhanging part of the base and then through the cæco-colic valve into the colon.

In cæcal impaction, the wall of the base is in a state of spasmodic contraction. The cæcal contents are then obstructed and only the fluid part is able to pass through the cæco-colic valve. Further, the base of the cæcum is doubled up, thus putting pressure on the valve and on the vestibulum coli. This spasmodic contraction has been recognised by rectal examination during life and its existence has been confirmed and photographed after death.

A brief account of the anatomy and physiology of the cæcum is given. Five photographs of impacted cæca illustrate the text and confirm the author's observations.

E. W. A.

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[**The Value of Pregnancy Tests in the Case of the Sheep.** (Trans. title.) Kust and Vogt. *Deuts. tierärtzl. Wschr.* April 21st, 1934.]

In the early part of their paper the authors refer briefly to the work which has already been carried out in an attempt to arrive at an early diagnosis of pregnancy in domestic animals. Such methods have not proved satisfactory, however, when applied to the ewe. Nevertheless, the authors carried out a further investigation with a view to ascertaining the efficacy of the biological tests as used in the case of the mare. The urine and serum of five ewes, four of which were tupped and one of which remained

empty, were tested out on mice. At regular intervals following conception three mice were injected subcutaneously on three successive days, with graded doses of urine and serum, and smears from the vagina were made and stained 24 hours after the last injection. There was no proliferation of the vaginal epithelium and the ovaries remained unchanged. From their results the authors conclude that when applied to the sheep such tests are of no value.

Preliminary tests in the case of the goat have, however, given favourable indications.

N. S. B.

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[**On Methods of Determining the Degree of Calcium Deficiency of Sheep.** Fraser, A. H. H., Godden, W., and Auchinachic, D. W. (1934.) *Biochem. J.* 28. 157-161.]

Supplements of chalk or cod-liver oil, fed to sheep on a calcium-deficient ration, resulted in improved health and rate of growth. A combined supplement of chalk and cod-liver oil is more effective than either alone. The arrest of growth on the basal calcium-deficient diet was due in part to decreased food consumption, the appetite being greatly improved by the addition of cod-liver oil and chalk together, and in part to an inefficient utilisation of the food consumed.

The serum calcium value was low on the basal calcium-deficient diet, slightly improved on this diet plus chalk, and greatly improved by the addition of cod-liver oil alone or of cod-liver oil and chalk together. It was shown that the animals fed on the basal diet actually were in calcium equilibrium whilst those with chalk or cod-liver oil additions showed a positive calcium balance. The effect of cod-liver oil in maintaining a normal serum calcium level was much greater than its effect in increasing calcium retention or rate of growth.

From the results obtained the authors conclude that growth rate and clinical observation remain the soundest method of determining the effects of supplements added to a calcium-deficient diet. Blood analysis, particularly, cannot be accepted as a satisfactory substitute, until the factors governing serum-calcium level are more perfectly understood. A calcium dietary undoubtedly lowers the serum calcium level, at least in sheep, but the effect of different factors in again raising it is not necessarily correlated with their effect on growth or on calcium retention.

W. R. W.

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[**A Deficiency Disease in Chicks resembling Scurvy.** Dam, H., and Schonheyder, F. (1934.) *Biochem J.* 28. 1355-1359.]

Chicks kept on an artificial diet consisting of vitamin-A-free caseinogen, marmite, soluble starch, salts and cod-liver oil or cod-liver oil concentrate, developed symptoms resembling scurvy. These symptoms were not relieved by the administration of orange juice or of the pure vitamin C (as ascorbic acid). If the starch is replaced by a mixture of cereals then the symptoms do not develop, hence it is concluded that the disease is due to a lack of some factor or factors occurring in cereals.

The symptoms observed were: a tendency to large hæmorrhages, certain pathological changes in the mucous membrane of the gizzard; anæmia (possibly due to the hæmorrhage), and insufficient growth.

W. R. W.

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[**Contribution to the Study of Blastomas in Animals: A Case of Primary Cancer of the Liver in the Sheep.** Arroyo y Martin, C. Ann. Rep. (1934.) *Inst. Anim. Biol. Span. Repub.* pp. 121-161.]

The neoplasm described is a primary adenocarcinoma of the liver with metastatic formations in the portal lymph gland, spleen, diaphragm and peritoneum. A number of good photomicrographs are included.

R. S. R.

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[**Stalked Lymphadenoid Polypus of the Palatine Tonsil in a Dog.** Mikschovsky, F. (1934.) *Wien. tierärtzl. Mschr. 21.* 12. 360-3.]

A description of two cases, one observed as the cause of discomfort to a dog during life and the other found at a *post-mortem* examination. The growth in the first case was shaped rather like the head of a swan and was 2·5 cm. long: it was removed by operation and on histological examination proved to be composed of lymphadenoid tissue covered by stratified epithelium. The second one was more compact and was 1·5 cm. long, but otherwise similar.

J. E.

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[**The Action of Bile upon the Bacillus of Swine Erysipelas.** de la Villa, G. C. Ann. Rep. (1934.) *Inst. Anim. Biol. Span. Repub.* 276-304.]

Bile and bile salts included in the culture medium caused a change in morphology and a temporary decrease in virulence in strains of the bacillus of swine erysipelas (*Erysipelothrix rhusiopathiæ*). Porcine bile produced more marked changes than bovine bile.

R. S. R.

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[**A Report on Tuberculosis in Wild Deer.** Levine, P. P. (1934.) *Cornell. Vet. 24.* 264-266. (4 refs.)]

The author records two cases of tuberculosis in wild deer. These are the first cases of the kind recorded in U.S.A., though Fox found 19 cases out of 171 autopsies performed upon captive deer. Of the above two, one was caused by the

bovine type of organism ; in the other the acid-fast organism was not typed. Both animals came from a part of the country where the herds of cattle are still heavily infected with tuberculosis.

As regards other parts of the world, infection has been described amongst captive deer in Germany by Eber, amongst wild deer in India by Goshel, and amongst wild Koodoo in South Africa by Paine and Martinaglia. In the last case it was thought that infection resulted from the buck drinking from troughs used by tuberculous cattle.

The importance of tuberculosis in wild deer should not be under-estimated. The factors to be considered are the possibility of spread of infection in the deer herd itself, and of spread from deer to cattle grazing on the same pastures.

E. J. P.

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[On a Gastro-enteritis of Cats due to a Filtrable Virus. (Trans. title.) Jarmai, K. (1934.) *Deuts. tierärtzl. Wschr.* *42*. 401-402.]

During 1933 there came under the observation of the author several outbreaks of gastro-enteritis among young cats of the same litter and it was considered possible that an infectious agent might be responsible. Reference is made to papers by Verge and Cristoformi (1928) [" Recherches bactériologiques sur une gastro-entérite infectieuse." *Rec. méd. vét.*, *104*, 385] and by Urbain (1933) [" Etude de la gastro-entérite infectieuse des chats." *Ann. Inst. Pasteur*, *51*, 202] both of which deal with a disease described as a " gastro-enteritis of the cat." Mention is also made of another paper by Hindle and Findlay (1932) [" Studies on Feline Distemper." *J. Comp. Path.*, *45*, 11].

[It is not yet clear from published experimental evidence (which alone can decide the point, purely clinical evidence being notoriously unsound) whether there is a single specific disease, " cat or feline distemper," in which one may encounter symptoms referable to affection of the respiratory tract (hence the vulgar epithet " snuffles of the cat ") and/or gastro-intestinal symptoms—and that, therefore, Verge and Cristoformi, Urbain, and Jármai, when studying a disease which they describe as " infectious gastro-enteritis," were in reality dealing with " cat distemper " in which the predominant signs were those of affection of the gastro-intestinal tract—or whether, on the contrary, " infectious gastro-enteritis of the cat " or what from the description of the lesions might be more correctly termed " infectious enteritis of the cat " is a separate entity.]

Autopsies were made by Jármai on affected cats about three to four months old. There was a diffuse inflammation with congestion of the small intestine chiefly in that part terminating in the cæcum, accompanied by turgidity and reddening of the associated lymph glands. Suspensions of the liver, spleen and blood from an affected animal were made in physiological saline and filtered through a Seitz filter. The filtrate, which was proved to be free from bacteria, was inoculated subcutaneously into two cats, six months old, in doses of 4 c.c. Each animal was kept in a separate cage. One of these developed diarrhœa on the 7th day followed by death in coma on the 9th day. The other showed signs of inappetence and became emaciated. Two cats were inoculated with a filtrate prepared from the organs of the first experimental cat which died. One of these died on the 11th day and the other survived. A further " passage " was made to two other cats by inoculation of a filtrate from the 2nd " passage " animal, both of which died on the 7th and 10th day respectively. All the experimental cats which died after inoculation showed intestinal inflammatory lesions similar to those encountered in the cases occurring under natural conditions. From this evidence Jármai concludes that the " infectious gastro-enteritis " with which he was dealing was produced by a filterable virus. Old cats appeared to be resistant. A cat was inoculated with a suspension of the internal organs from a sick animal ; this organ material had been kept in 50 per cent. glycerin for 40 days ; the cat died on the 7th day with typical intestinal inflammation. Similar material kept in glycerin for 99 days gave a negative result.

Gastro-enteritis may sometimes appear as an enzoötic. In one village 60 cats less than a year old died in three weeks, with symptoms of diarrhœa, vomition and ptyalism. In a second village nearly all the cats died. In severe infections even adult cats may be affected.

I. A. G.

RICHMOND ROYAL HORSE SHOW

The Richmond Royal Horse Show will be held in the Old Deer Park, Richmond, on June 13th, 14th and 15th, under the presidency of the Earl of Athlone.

The prize schedule, recently issued, shows that a total of 44 classes will be judged during the three days of the show. This will be the largest number of classes at any of the society's shows except that of 1930, when there was a record entry of over 1,000 in 47 classes. There were 42 classes last year. The additional classes are the Driving Marathon and Shetland ponies in harness.

The show is noted for the large number of valuable trophies offered for competition, including the King's Cup for mounted police, the Queen's Cup for children's ponies, the Prince of Wales's Cup for ladies' hunters, the Duke of York's Cup for officers' jumping, and the Earl of Athlone's Cup for novice hunters. A new cup, presented by Lord Lee of Fareham, will be offered for the best hack in the show. Other new trophies include cups presented by the Mayors of Richmond and Barnes.

Review

[**Black's Veterinary Dictionary.** Edited by Wm. C. Miller, M.R.C.V.S., F.R.S.E. 2nd Edition, revised and enlarged, pages 1,140, 8 plates and 326 figures. A. & C. Black, Ltd., London. 21s. net.]

The first edition of this book was published in 1927, and it speaks well for its popularity that the second edition is now called for. Moreover, the results of modern research have necessitated various articles being brought up to date. This has been effectively carried out by the editor, and the extension of 1,080 to 1,140 pages has been required to incorporate reference to a number of subjects which had not been included in the original edition. In this section we welcome a table bringing up to date the modern nomenclature of bacteria, which is causing confusion to almost everybody except bacteriologists and quite recent students. The table includes the synonyms by which the organisms were formerly known, and the names of the diseases with which they are associated. Two other subjects dealt with at some length are those of electro-therapy, and sex-linkage in birds.

It is perhaps inevitable in a work of this dimension that certain inaccuracies in the first edition may have been overlooked, but we are sorry to note the omission of one correction, the necessity for which we commented upon in our review of the first edition. It is with reference to dentition of sheep, in which there is a marked discrepancy between pages 289 and 862. On the latter page the sheep between 2nd and 3rd shearing is inaccurately said to be a "four-toothed sheep" and one from 3rd to 4th shearing a "six-toothed sheep." No doubt the editor will pay some attention to this in any subsequent edition.

We have every confidence that this work will continue to be found useful by all those to whom it is specifically addressed.

The publishers have again produced a volume up to their usual standard of excellence.

OLDEST DONKEY DEAD

"Lassie," said to be the oldest donkey in Great Britain, was found dead on Monday of last week and was buried in the paddock where it had been kept for years. "Lassie" was 47 and belonged to Miss Mabel Bruce, of Westmorland Road, Bromley, a daughter of the late Mr. Justice Bruce. Miss Bruce and her sister were on holiday near Paisley in 1888 and heard that a local farmer was trying to find a home for a crippled donkey born in a gipsy camp, and left behind by the gipsies. The two sisters accepted the donkey and took it to Bromley.

N.V.M.A. QUARTERLY MEETING OF COUNCIL

Summary of Proceedings

In view of the many momentous activities entered upon as the result of the outstandingly important meeting of Council held at the commencement of the year, it is no matter for surprise that the whole proceedings of the April meeting—the report of which will appear in an early issue—bore somewhat the aspect of a progress report; indeed, that term will be found to recur with regularity throughout the detailed account.

The key-note of progress, in the most acceptable sense of that word, was struck very early in the deliberations of Council, when the welcome announcement was made that the number of members on the register of the Association has attained the "record" figure of approximately 1,700, and every member will endorse the President's expression of hope that 'ere long the "National," in its endeavours to promote the interests and increase the prestige of the profession, will have that full measure of support which a truly representative membership alone can give.

The correspondence laid before the meeting was enlivened by a vigorous manifestation in favour of the widely held view—voiced by the North Wales Division—that the decision to withhold publication of the minutes of evidence given before the Cattle Diseases Committee of the Economic Advisory Council should not be accepted without protest, while the achievement of Finance Committee consideration, secured by its sponsors for the proposal that the expenses of Branch and Divisional representatives to Council should be met by the Association, provides a formidable addition to the deliberative labours of that Committee.

Welcome unanimity of approval greeted the remaining letter, relating to the appeal for the endowment fund for the Library of the Royal College, and the consequent decision to encourage the Divisions to give the appeal their most sympathetic consideration.

Of the number of Standing, Special, Advisory and other Committees of the N.V.M.A. there would appear to be no end, but the report of each is its own full justification, and a few features may be mentioned.

The Organising Committee, which has been much engaged in promoting the smooth working of the schemes run in conjunction with the R.S.P.C.A. for the provision of free treatment for the sick animals of poor persons, gained Council's approval for the affiliation of the Association with the Parliamentary Science Committee of the Association of Scientific

Workers, thereby ensuring that the N.V.M.A. shall be enabled to raise in Parliament, through that Committee, questions affecting the veterinary profession.

The report of the Parliamentary Committee reveals an increasingly insistent concern for the standardisation and control of veterinary biological products, but inasmuch as the Association's Special Committee on the Tuberculin Tests has recommended the making of representations to the Ministry of Agriculture with regard to tuberculin, the Committee has agreed to content itself with those representations for the time being, approaches in regard to other products to be made at a later date.

In view of the facts that the question of fees for the clinical examination of milch herds for Grade "A" licences under the Accredited Herd Scheme presents so many aspects, and that the method of applying the Scheme is essentially one for local arrangement, the Veterinary Officers' and Public Health Committee made a recommendation (accepted by the Council) that each Division should be asked to call a special meeting as soon as possible, for the purpose of deciding upon the fees for work under the Scheme, having regard to the necessity for arranging these fees on a county basis.

Concerning the Advisory Scheme, great hope was expressed of the removal of an unfortunate *casus belli* within the profession following upon the efforts made by the Special Committee to secure from the Ministry of Agriculture such a modification of the instructions issued to Veterinary Advisory Officers as would remove existing objections to the Scheme.

It is felt that the revised instructions which are the subject of an agreement with the Ministry, and which agreement the Royal College has been asked by the Ministry to recognise, will go a long way towards dispelling criticism of the Scheme, and open up a new era in the relationship between the practitioner and the Veterinary Investigation Officer, by which title the advisers will be described in future. It is hoped to make this important matter the subject of editorial comment in an early issue.

Allied to the above, in having close relation to the practitioner's livelihood, was the information contained in the report of the Special Committee on the proposals of the Economic Advisory Council's Committee on Cattle Diseases. This interim document revealed that the Association's Scheme had been circulated to all County Councils in England and Wales, and other public bodies, Ministries, etc., and that the Scheme had been discussed with and explained to representatives of the Ministry of Agriculture and the Ministry of Health. It is satisfactory to learn that a promise has been obtained that the Association's proposals will be taken into account when measures for putting the recommendations of the Hopkins Committee into effect are being considered by the departments.

As to the arrangements for carrying out the veterinary work in connection with the Accredited Herd Scheme, these, it is learned from the Milk Marketing Board, will be made by the County Councils. The representative body of that Association, however, has decided that it would be premature to consider the N.V.M.A. Scheme until information regarding the extent to which the Government intend to adopt the recommendations of the Cattle Diseases Committee is available.

The President justly described as "excellent work" the activities reported upon by the Advisory Committee on Parasitic Diseases, and it is a welcome announcement that arrangements are being made for the publication of an annual report, in which it is hoped to include a brief survey of the literature on important discoveries, new lines of treatment, and methods of control.

INTERNATIONAL HORSE SHOW

The International Horse Show, which it is anticipated that in this Jubilee year many oversea visitors to London will attend, will be held at Olympia from June 20th to June 29th under the presidency of Admiral of the Fleet Lord Beatty.

The Members' Club, which was introduced at Olympia last year, will be continued, and in anticipation of an increased membership the accommodation will be enlarged. The privileges to which members of the club will be entitled will include the use of a special enclosure, a balcony overlooking the arena, a reading and writing room, and a refreshment room and snack bar.

Class events will be arranged on similar lines to those of former shows. The prize schedule contains a total of 91 classes, compared with 79 last year. There will be additional harness and riding classes. Arabian horses will form a new class; there will be special classes for weight-carrying cobs, and in the children's section two novice riding classes will be introduced. The coaching Marathon will again be a feature of the show, and other four-in-hand events will be included. The competition for hunt teams of three hunters from any recognised hunt in the United Kingdom, which was successfully introduced last year, and the dressage test for riding horses are among the items for which valuable prizes are again offered.

Jumping Competitions

The jumping competitions, of which there will be 13, include a new contest for pair jumping. The competition will be open to teams of two of the same nationality, who will be required to jump abreast. It is expected that there will be keen competition for the King George V Gold Cup for military officers' jumping and the Prince of Wales's Cup for jumping by teams of officers. Already entries have been received from the Irish Free State, France, and Belgium, and it is likely that other countries will send representatives.

N.V.M.A. Divisional Reports

LINCOLNSHIRE AND DISTRICT V.M.A.*

ANNUAL MEETING AT LINCOLN

Dr. J. Stanley White on "The Sex Hormones"

The Annual General Meeting of the above Division was held at the Angel Hotel, Grantham, on Thursday, February 14th.

The chair was taken by the President, Geo. Eaton, Esq., and those present included Messrs. Lang, G. Gibson, W. Gibson, Porter-Smith, Foster, Sugden, Logan and the Honorary Secretary.

Apologies for absence were received from Sir Frederick Hobday and Dr. G. B. Brook, Honorary Associates, and from Messrs. Truman, F. L. Gooch, Townsend, Standley, senr., and Lockwood.

Election of Office-Bearers.—Members elected for office for the year 1935–1936 were as follows: President—Mr. W. Lang; Vice-Presidents—Messrs. G. Eaton, A. J. Hines, and K. J. S. Dowland; Hon. Secretary—Mr. H. C. Reeks.

Correspondence.—The Secretary then read correspondence from the Secretary of the National Veterinary Medical Association, as follows: (1) A letter urging that negotiations with local branches of the R.S.P.C.A. should be undertaken by Divisions, with a view to the better organisation of the veterinary treatment of the sick and injured animals of persons who are too poor to pay the usual fees. In this case it was decided that the Secretary should get into touch with Lt.-Col. Gartside, the Regional Organiser for the area covered by the Division. (2) A letter making the tentative suggestion that a comprehensive subscription should be arranged to cover membership of the "National" and all its Divisions.

The Secretary was instructed to reply that the members of the Division were not prepared to support the suggestion.

Address.—The President then called upon Dr. J. Stanley White, of the Medical and Scientific Department, Parke, Davis & Company, to give his address on "The Sex Hormones." This, which was illustrated by lantern slides, was listened to with great interest and was productive of some discussion amongst the members.

"The Sex Hormones"

Dr. J. Stanley White, in his opening remarks, referred to the possibility of sterility being caused by the influence of factors which result in under-development or dysfunction of the reproductive system rather than upon infection. The latter condition played an important part in sterility but it was by no means all the story, and he proposed that afternoon to discuss the endocrine aspect.

He explained that the sex glands were under the control of the anterior pituitary, which elaborated a gonadotropic hormone. The German school held the view that the anterior pituitary produced two sex hormones, but his own view was that stimulation of the ovary, and the secretion of œstrin, resulted from small doses of the anterior pituitary-like sex hormone, whereas larger doses caused the formation of corpora lutea. It was a matter of the greatest interest that the anterior pituitary was not only responsible for the gonadotropic hormone, but it also appeared to control the thyroid, the suprarenal, the pancreas, parathyroid, the mammary gland, and it might even be, the pineal and thymus. Fortunately, it was possible to obtain this gonadotropic hormone from the urine of pregnancy.

Pregnancy urine also contained the female sex hormone—œstrin, as it was generically termed—in addition to the gonadotropic hormone. It was also present in the liquor folliculi of the Graafian follicle, the liquor amnii, the blood, and the placenta.

The chief source to-day was the urine of pregnant mares. More recently still it had been shown that the urine of stallions excreted an enormous quantity of the sex hormone. One authority had calculated that in the course of twelve months the stallion was capable of excreting over 60 grammes by weight of female sex hormone. This peculiarity in a male animal appeared to be limited to equines.

The use of the female sex hormone came under the heading of substitution therapy. In small animals—the bitch, for example—œstrin could be employed to bring on œstrus. In larger animals, however, the doses necessary would be so great as to preclude its use. In cases of sterility, therefore, it would appear to be better to think in terms of stimulation therapy, and for this purpose the anterior pituitary-like sex hormone had been responsible for some striking results. Very small doses of "prolan," or, as it was generally termed in this country, "antuitrin 'S,'" had been used in the bitch, and doses of 1 or 2 c.cs. in larger animals, such as the cow or the mare, and such treatment had been sufficient to stimulate the ovary to produce its gonadotropic hormone, which was responsible for starting œstrus.

After referring to the importance of the Zondek-Ascheim test in veterinary practice, Dr. White discussed the question of the difference between the menstrual cycle of the primate, and the œstrus cycle of the lower mammals. He explained that the main difference lay in the

* Received for publication, March 15th, 1935.

distribution of the respective follicular phases, *i.e.*, the period at which œstrus functioned.

The lecturer stated that the male hormone did not materially differ chemically from the female hormone; in fact, one had been converted into the other in the laboratory. A remark which aroused much interest was to the effect that in the human subject Dr. White had succeeded in successfully treating boys with imperfectly descended testes by means of bi-weekly injections of "antuitrin 'S'," and it was possible that such treatment might be employed in the lower animals.

The concluding part of the lecture was devoted to the chemistry of the sex hormones, and the suggestion was made that a study of these might bring us a stage nearer to the solution of malignant disease. It was a fascinating fact that big doses of vitamin D would produce œstrus in an ovariectomised rat. Some workers had produced synthetic compounds which had an œstrogenic effect, but some of them were also carcinogenic. There was no evidence that big doses of œstrin would produce malignant disease, but it would seem that a study of these "ring" compounds offered great possibilities in solving what was perhaps the outstanding problem in medicine.

Following the discussion, the President thanked Dr. White for his very interesting address. The subject was one that had not been very much to the fore in veterinary matters, and although most of them had not been able to make much comment on the paper, he was sure that it had given them something to think about.

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Verminous Aneurysm

Before the meeting concluded, Mr. W. Lang showed the members a collection of specimens of verminous aneurysm due to the larvæ of *Strongylus vulgaris*. Mr. Lang said that since Mr. Pillers "dropped his bomb" at their last meeting, he had taken considerable interest in the larval stage of that parasite and its devastating work; as a result of this a considerable number of specimens had been brought for their inspection.

So prevalent had he found these aneurysms to be that he had asked one knackerman to make a note of all horses brought in from January 1st to February 8th; this had been done and he himself had seen them all. In all, fifteen horses and one donkey had been received, and the aneurysm had been found in every one. Some of these animals had been destroyed owing to inability to rise, also being aged and debilitated, and nine had died from various causes: emaciation and dropsy (2), impaction of the large colon (2), impaction of the caecum (2), diarrhœa—rapidly fatal (1), tetanus (1), and drowned (1)—not by the stomach tube but in a ditch. (Laughter.)

All the animals were in a very low condition, with the exception of one which was fair and one fat—the tetanus case. He was sorry that in the majority of cases he could give them no history, because few of them had been seen by him during life. The mare, the subject of tetanus, was seven years old, fat, and had been purchased at a farm sale last spring for £40—a fact which spoke for itself. The specimen from this case was still unopened and was the largest of them all. In its fresh condition it had appeared to be on the point of bursting; he thought that when it was opened they would find considerable calcification of the contents. He would also like to draw their attention to the large number of small arteries setting up collateral circulation.

In his district he had never seen so many debilitated farm horses as were to be found at present, and on looking over these specimens he did not think that they would be surprised. He was sure that Mr. Pillers had given him the clue to many cases which had previously puzzled him. He had shown specimens to some of his clients, as a result of which he had treated well over a hundred horses for debility, with good results save in a few cases which were easily explained when they saw the extent to which the arteries were occluded; in fact, several owners had expressed their intention of having all their horses treated in future when taken up from grass for the winter months.

He had added antim. pot. tart. and sod. cit. to the salt solution with an enhanced result, but was not sure whether the antim. pot. tart. had any parasiticidal effect on the larvæ or whether the sod. cit. and salt solution tended to dissolve the thrombi and bring about healing of the intima in those vessels not yet completely occluded. It might be that the good results were due to the general toning up all round. About a fortnight previously he gave three horses ol. lini Oi. and ol. tereb. 2 oz. along with the above mixture and had the mortification of seeing one die from super-purgation and nervous derangement.

He had been extremely interested in Taylor's remarks concerning the toxic effects of the recognised treatment for strongylosis in some instances. Mönnig's description of the toxic effects of carbon tetrachloride was equally interesting. Substitute his treatment for carbon tetrachloride and the story was clinically the same. He had seen no cause for alarm until it was too late; a subcutaneous injection of calcium effected an improvement, but it was soon followed by a relapse and a fatal ending. Mönnig's remarks about food rich in calcium and carbohydrate, and food rich in proteins were very illuminating. It would be interesting

to know whether in the case of the army horses with their 100 per cent. good results, they were well fed before treatment, and conversely, whether the untoward incidents referred to by Taylor, occurred amongst grass-fed horses.

During the last few years he had had excellent results in two cases of so-called grass staggers following the subcutaneous injection of calcium. Chambers had also reported a successful case. For the treatment of carbon tetrachloride poisoning, Mönnig recommended calcium injections. It would be interesting to know whether, at last, they had found the correct treatment for super-purgation.

As he saw things now, parasites in the horse were the cause of appalling losses to owners, and he agreed with Pillers that a review of the situation was long overdue. He, however, was not optimistic enough to share Pillers' view that they could easily be overcome.

The knackerman already referred to, had become an adept at finding the aneurysm. The technique was to pull up the carcase until the quarters were just below the level of one's head and to open the abdomen freely. Cut out the small colon and the aneurysm could easily be located by palpation just opposite the first lumbar vertebra.

References.—(1) "Some observations on Colic in Adult Cart Horses due to the Larvæ of *Strongylus vulgaris*."—A. W. Noel Pillers (*Vet. Rec.*, Nov. 24th, 1934).

(2) "The Veterinary aspect of Parasitology."—E. L. Taylor (*Vet. Rec.*, Feb. 2nd, 1935).

(3) Veterinary Helminthology and Parasitology.—Mönnig.

The meeting concluded with the passing of hearty votes of thanks to Dr. Stanley White and Mr. Lang for their valuable contributions to the proceedings.

Before separating, the members spent a social hour over the tea-tables.

H. C. Reeks, *Hon. Secretary.*

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NORTH MIDLAND V.M.A.*

MEETING AT SHEFFIELD

A meeting of the above Association was held at the King's Head Hotel, Change Alley, Sheffield, on December 11th, 1934.

The President, Mr. F. C. Scott (Pontefract), occupied the chair; there were also present Messrs. F. H. Addison, T. Bowett, W. Collinson, T. C. Fletcher, G. Green, R. Hudson, H. M. Salusbury, H. Thompson, and the Hon. Secretary.

Obituary.—Before commencing the business of the meeting the members stood in silence in memory of Major J. Abson, Sheffield, who had been an esteemed member of the Association since its commencement.

* Received for publication, March 20th, 1935.

New Members.—Messrs. F. H. Addison and H. M. Salusbury were elected members of the Association.

Election of Officers

President.—Mr. E. Marrison (Bakewell).
Vice-Presidents.—Messrs. Nixon and Walker.
Hon. Treasurer.—Mr. H. Thompson.
Hon. Secretary.—Mr. W. Tweed.
Auditors.—Messrs. Fletcher and Salusbury.
Council.—Messrs. Addison, Bowett, Canning, Collinson, Green and Hudson.

Paper.—Mr. F. Beckett, F.R.C.V.S., Blandford, Dorset, gave an interesting and valuable paper on "Some Pig Diseases." [Mr. Beckett's paper, and a report of the ensuing discussion, are reproduced at the commencement of this issue.—*Editor.*]

This concluded the business of the meeting.

Wm. Tweed, *Hon. Secretary.*

THE NATIONAL VETERINARY BENEVOLENT AND MUTUAL DEFENCE SOCIETY*

ANNUAL GENERAL MEETING

The Annual General Meeting of the National Veterinary Benevolent and Mutual Defence Society was held at Sunlight House, Quay Street, Manchester, on Wednesday, March 20th, 1935, at 3.30 p.m.

The chair was taken by the President, W. Woods, Esq., F.R.C.V.S., and there were also present Messrs. G. H. Locke, J. Holroyd, J. Clarkson, E. H. Curbishley, J. H. Wright, F. L. Gooch, J. Spruell, F. Hopkin (Hon. Treasurer) and R. C. Locke (Hon. Secretary).

Apologies for unavoidable absence were received from Messrs. A. W. Noel Pillers, A. Cornish-Bowden, H. J. Loveless, W. Jackson Young and Sir Frederick Hobday.

The minutes of the previous Annual General Meeting, having been published in *The Veterinary Record*, were taken as read.

Obituary.—The President referred to the loss sustained by the Society through the deaths of Messrs. J. Lindsay and L. W. Wynn Lloyd. Both these gentlemen had served for a number of years on the Council, Mr. Lindsay having been Vice-President since 1927. The meeting stood in silence as a tribute to their memory.

Election of Officers

The following officers were elected for 1935–1936 :—

President.—W. Woods, Esq., F.R.C.V.S., Wigan.
Vice-President.—J. Clarkson, Esq., M.R.C.V.S., Garforth.

* Received for publication, March 23rd, 1935.

Council.—Messrs. J. W. Brittlebank, Rhyl; A. Cornish-Bowden, Beckenham; E. H. Curbishley, Alderley Edge; F. L. Gooch, Stamford; O. V. Gunning, Tutbury; Sir Frederick Hobday, London; Messrs. J. Holroyd, Blackburn; D. Imrie, Glasgow; G. H. Locke, Manchester; R. Barons Nelder, Exeter; W. Packman, Bury; A. W. Noel Pillers, Liverpool; W. D. Rees, Glamorgan; W. Shipley, Great Yarmouth; J. Spruell, Manchester; H. Sumner, Senr., Liverpool; W. K. Townson, Peterborough; and J. H. Wright, Manchester.

Hon. Treasurer.—Mr. F. Hopkin, O.B.E., M.R.C.V.S.

Hon. Secretary.—Mr. R. C. Locke, M.R.C.V.S., D.V.S.M. (VICT.).

Auditors.—Major J. Adamson (Honorary) and Messrs. Litton, Pownall, Blakey and Higson.

Life Members.—In accordance with Rule II of the Benevolent Fund Regulations, Messrs. A. Cornish-Bowden and F. H. Stainton, by reason of their donations during the year, became Life Members of the Benevolent Branch.

Hon. Treasurer's Report

The Hon. Treasurer, Mr. F. Hopkin, in submitting his Balance Sheet for the year ending December 31st, 1934, remarked that the Society had been fortunate in being able to avoid large litigation costs during the year and, as a result, the Defence Fund was in a sound position. Regarding the Benevolent Fund, the grants paid to the various beneficiaries amounted to practically the whole of the income available. During the year £700 had been invested, and the need was stressed for consolidating the investments of this Fund as a safeguard against falling income through present-day low rates of interest.

The Report and Balance Sheet were approved and adopted.

The meeting concluded with a vote of thanks to the President.

DEFENCE CASES

Case.	Particulars.	Action Taken.	
1.	Threatened action for damages against member for alleged negligence in treatment of Spaniel	Support and advice given to member	Claimant did not proceed with action.
2.	Claim against member after dispute over soundness in a hunter	Case settled out of Court	Society paid agreed sum.
3.	Dispute between member and client regarding dog in kennels	Advice given	Action not proceeded with.
4.	Claim against member for alleged negligence by qualified assistant during operation on dog.	Support and advice given to member	Claim not proceeded with.

BENEFICIARIES

Name.	Age.	Relation to M.R.C.V.S.	Grant.	
M.J.	82	Widow	£2 per month	Plus £5 emergency gift.
K.L.H.	82	„	£2 „	
T.E.H.	—	Four children	£4 „	
M.D.	62	Widow	£3 „	
E.B.C.	52	„	£2 „	
M.A.	40	„	£4 „	
M.B.B.	69	Daughter	£2 „	
K.E.C.	72	Widow	£2 „	
H.T.	70	„	£3 „	
S.Y.	77	„	£3 „	
E.M.	69	„	£2 „	
A.J.P.	63	„	£2 „	
S.J.	69	M.R.C.V.S.	£2 „	
L.M.R.	39	Wife	£4 „	Plus £12 emergency gift.
D.C.T.	56	Daughter		£3 emergency gift.

ACRIFLAVINE AS A GENERAL ANTISEPTIC

The resident medical officer at Pontefract Infirmary, Dr. J. R. Robson, stated at an inquest on February 21st, that iodine as an antiseptic ought to be replaced in general use by acriflavine. He thought that iodine was less powerful than acriflavine, was too painful, and tended to destroy the tissues. Inquiries among doctors and chemists showed that acriflavine had been in fairly general use in hospitals, etc., for ten years or so.

R. C. Locke, *Hon. Secretary.*

"Notes on the Correct Fitting of Harness," by Major-General Geoffrey H. A. White, issued as Leaflet No. 34, *gratis* on application, by the National Horse Association of Great Britain, 12, Hanover Square, W.1, is a succinct compilation likely to prove serviceable to the veterinary student engaged upon Animal Husbandry (*I*).

In Parliament

The following questions and answers have been recorded in the House of Commons recently:—

Pasteurised Milk

Major Mills asked the Minister of Health whether he is aware that some distributors of milk collect milk at country depôts at considerable distances from London and pasteurise it there; that they then transport it to London in bulk and pasteurise it again to nullify the effects of contamination and deteriorisation before bottling it for distribution; and whether he is satisfied that this second pasteurisation is a desirable practice in the interests of the health of the consumers?

Mr. Shakespeare: My right hon. Friend is advised that it is undesirable that milk should be heat-treated more than once, and he was not aware that this procedure is adopted at the present time. It is one of the conditions of the sale of milk as "pasteurised" that the milk should not be heated more than once, and if my hon. and gallant Friend will supply any evidence of an infringement of this condition my right hon. Friend will bring it to the notice of the appropriate local authority.

. . . . .

Milk (Nutritive Value)

Mr. Cove asked the Minister of Health whether he is now in a position to give the House any information as to the proposed inquiry into the nutritional value of milk at certain schools and approved centres?

Mr. Elliot: I have been asked to reply. Yes, Sir. The Milk Marketing Board for England and Wales and the Scottish Milk Marketing Board have submitted to the Secretary of State for Scotland and myself particulars of certain arrangements for conducting an inquiry into the nutritional value of milk. These arrangements have now been approved for the purpose of Exchequer contributions under Section 11 of the Milk Act, 1934, and in accordance with the provisions of that Section have been laid before Parliament and are now available to the House. The scheme is supplementary to the Milk-in-Schools Scheme, and it is hoped that the information which will be collected will not only be of great value to those engaged upon nutritional research and in connection with public health and education services, but will also have an important bearing upon the problem of increasing the demand for liquid milk in this country. As will be seen from the particulars in the White Paper, the inquiry is under the supervision of a representative expert subcommittee of the Advisory Committee on Milk Publicity of the Milk Marketing Board for England and Wales and is being conducted by experienced medical officers working in conjunction with school medical officers and teachers. It is on a large scale, covering some 8,000 children and is expected to last for some twelve months.

Brigadier-General Clifton Brown: Will not my right hon. Friend, instead of having only medical officers, have on this inquiry people from the Dairy Research Department at Reading, who are knowledgable in this matter?

Mr. Elliot: I think that, if my hon. and gallant Friend will read the White Paper, he will see that the various departments concerned are fully represented.

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Meat (Nutritive Values)

Mr. Lambert asked the Minister of Health whether his Department has made investigation as to the nutritive values of home-grown, chilled, and frozen meat and, if so, what results have been disclosed?

Mr. Shakespeare: No such investigation has been made by my Department.

Mr. Lambert: Cannot such an investigation be made by the Health Ministry?

Mr. Shakespeare: Of course, it could be made, but I would like to discuss with my right hon. Friend whether it is worth while making it.

Lieut.-Colonel Acland-Troyte: Is it not a fact that investigations made by outside bodies show that home-killed meat is superior?

Mr. Macquisten: Does it not all depend on the particular animal from which the meat is obtained?

. . . . .

Pedigree Cattle (Canadian Import Regulations)

Sir Robert Smith asked the Minister of Agriculture whether he is aware that the Canadian Government have recently passed regulations prohibiting the importation of pedigree cattle into Canada from this country except through the London quarantine station; that the Canadian import regulations with regard to pedigree cattle are more strict than those imposed by any other Dominion or the Argentine; and that, owing to the accommodation at the London quarantine station being limited, there are large numbers of cattle awaiting shipment to Canada; whether he will consider setting up a quarantine station at Glasgow; and whether he proposes to take any, and what, steps to deal with the situation.

Mr. Elliot: The answer to the first part of the question is in the affirmative. As regards the second part, I think that my hon. Friend is under some misapprehension. The Canadian regulations for the import of cattle, though stricter than those of the Argentine Republic, are similar to those of the Commonwealth of Australia and the Union of South Africa; and New Zealand at present prohibits entirely the importation of animals direct from the United Kingdom. The difficulties in regard to the export of cattle to Canada arise, not from lack of accommodation at the London Quarantine Station, which is adequate for the requirements of the trade, but from the absence of shipping facilities from London direct to Quebec, the only Canadian Quarantine Station available during the summer. Efforts have been made, and will be continued as opportunity offers, to secure improvement in those facilities. I may add that animals may be exported direct from Scotland to Canada, when Scotland is entirely free from foot-and-mouth disease. This arrangement was suspended on the outbreak of the disease in Lanarkshire on January 17th last, but it is hoped that this suspension will be removed about the end of this month.

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Imported Canadian Cattle (Slaughter, Glasgow)

Mr. Leonard asked the Minister of Agriculture whether he is aware of the representations made by the Canadian High Commissioner and interested parties in Glasgow, asking for a re-examination of 44 Holstein breeding cows, 23 of which were condemned to slaughter a few hours after importation following a very severe voyage, solely on their conformation; that these cows were favourably reported on after examination by an experienced veterinary surgeon and the Glasgow Veterinary College as to health, had passed the tuberculin test of the Canadian Government, and been accepted as suitable breeding stock by four representative dairy farmers; and whether he can state why the request for a re-examination was not granted?

The Minister of Agriculture (Mr. Elliot): I am aware of the circumstances referred to in the question, but I would point out that the animals were not rejected for veterinary reasons. I did not order a re-examination, because I was satisfied that the original examination was carefully carried out and that the decision that these animals were unsuitable for breeding purposes was well-founded.

Mr. Leonard: Is the right hon. Gentleman aware that a number of these cows have calved, and that the calves have been deemed to be healthy and of good quality? In view of the fact that they represent a large percentage of the shipment, does he not consider that in the circumstances it is only fair that there should be a re-examination, in support of which there is very weighty evidence?

Mr. Elliot: No, Sir. I cannot undertake to have any re-examination of these cattle.

Mr. Leonard: Is it not a fact that there has been no test to confirm this opinion and that it lies at the discretion of one man?

Mr. Elliot: I am afraid that that is why it is so difficult to have a re-examination. One must rely upon one's authorised officer. As the hon. Member has said, it is a matter of opinion, and we have to take the opinion of the expert.

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Remounts

Mr. Savory (for Major Carver) asked the Financial Secretary to the War Office the number and value of remounts purchased for the Army during 1934 in England, Wales, Scotland, Northern Ireland, and the Irish Free State, respectively; and how these figures compare with those for 1933?

Mr. Hacking: As the answer contains a number of figures, I will, with my hon. and gallant Friend's permission, circulate it in the Official Report.

Following are the figures:—

—	1933. Number.	1933. Value.	1934. Number.	1934. Value.
		£		£
England	774	47,184	744	43,588
Wales	32	1,702	17	1,005
Scotland	14	841	25	1,530
Northern Ireland	494	29,644	633	36,416
Irish Free State ...	168	5,712*	165	5,775*

* These figures do not include Customs Duty.

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Experiments on Living Animals (Return)

Mr. Groves asked the Home Secretary whether he will consider issuing the Home Office Return of Experiments on Living Animals in the larger form at the price of 1s. 3d., as well as in the abridged form at 9d., as many people are desirous of obtaining the extra information that was contained in the larger publication?

Sir J. Gilmour: The form of this return was reviewed a few years ago in connection with measures taken to reduce expenditure on Government publications. It was found that by the omission of a long table giving the analysis of experiments performed by each licensee a considerable saving could be effected both in the preparation of the return and its printing. This accounts for the reduction in price. I regret that on grounds of economy I cannot give effect to the hon. Member's suggestion.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

April 13th.—Meeting of the Scottish Branch, N.V.M.A., at Stirling.

April 26th.—Meeting of the Yorkshire Division, N.V.M.A., at Leeds.

April 29th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, at 4 p.m.

May 9th.—Last day for nominations for election to R.C.V.S. Council.

May 23rd.—Voting Papers issued R.C.V.S. Council Election.

May 30th.—Last day for return of Voting Papers R.C.V.S. Election.

June 6th.—R.C.V.S. Annual General Meeting, 12 noon; Luncheon, 1.15 p.m. Annual General Meeting, Victoria Veterinary Benevolent Fund, 12.45 p.m.

June 13th.—D.V.S.M. Examination begins, Edinburgh.

July 29th—August 2nd: N.V.M.A. Congress at Belfast.

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ROYAL COLLEGE OF VETERINARY SURGEONS

Annual Meeting and Luncheon

The Annual Meeting of the College will be held at 10, Red Lion Square, on Thursday, June 6th, at 12 noon, when the Annual Report will be received, and the election of eight members of Council will take place.

After the meeting there will be an official luncheon at the Connaught Rooms, Great Queen Street, W.C.2. There will be a reception by the President at 1.15 p.m., and the luncheon will begin at 1.30 p.m. The price of the tickets will be 6s. 6d., and lady guests may be invited.

This is an innovation, and we wish it every success. Applications for tickets should be sent to the Secretary of the College at 10, Red Lion Square, London, W.C.1, accompanied with the necessary remittance.

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ULSTER VETERINARY MEASURE

The Bill Withdrawn

In the Ulster House of Commons on April 2nd, Mr. T. J. Campbell, K.C., moved the second reading of his Veterinary Surgery Bill, but after some discussion withdrew it. An assurance was given by the Premier (Lord Craigavon) that an amended measure, if brought forward at some future date, would receive every consideration.

In moving the second reading, Mr. Campbell said that the measure sought to check the recurring losses to farmers and stockowners and

to prevent injury and torture to animals arising from the misguided activities of certain venturesome amateurs who rashly undertook the treatment of serious ailments or injuries for which trained skill was indispensable. Unnecessary losses and at times indescribable and harrowing suffering were caused by these people in cases where qualified veterinary surgeons, by proper treatment, could have averted the losses and rescued the animals. Unqualified and untrained persons were free to try their apprentice hands and blunder along in difficult and hazardous work which could only be done and ought only to be done by trained men who had fitted themselves for the task by five years of intensive study and by reaching a prescribed standard of education and professional competence.

The Royal College of Veterinary Surgeons conducted the qualifying examinations of all veterinary surgeons in Great Britain, Northern Ireland and the Free State. The profession had one uniform course of examination, one uniform standard of learning for admission to membership through the United Kingdom. The College was the supreme authority in respect of the training of students. At present any "jack-of-all-trades" with no qualifications was free to practise all kinds of veterinary surgery or medicine in Northern Ireland. His name need not be on the register of the College of Veterinary Surgeons or any register. True, he could not use the title of Veterinary Surgeon, and could not recover fees for acting as a veterinary practitioner. He flourished notwithstanding and flourished on confusion and delusion, because, for all practical purposes, many of the poorer classes could not tell who was trained or who was untrained. There was nothing in the Bill which could, by any possibility, be construed as prohibiting farmers or others who habitually kept animals or their servants from performing any operations on or administering any medicine to an animal incidental to the usual care and management of animals of that class. No restriction in this respect was implied or intended.

Farmers requiring the aid of a veterinary surgeon for the cure of diseases in or injuries to horses or other animals should be facilitated in distinguishing between qualified and unqualified practitioners.

The practice of unskilled horse doctors, horse surgeons, cow leeches, cattle doctors, whatever their titles might be, of dabbling in cases of serious complaints, of the origin and cure of which they were in abysmal ignorance, led to the injury of the interests of owners and to the torture of dumb creatures, and was prejudicial to the status of the honourable and public-spirited veterinary profession, whose members had spent time and money in becoming proficient in their calling. The presence of such an enactment as proposed on the Statute Book would be a deterrent to venturesome spirits who were accustomed to luxuriate in pastures in which this Bill would regulate them, in the interests of the community. (General cheers.)

Mrs. Parker (U., South Londonderry) seconded, saying the Bill would give a square deal to the members of the veterinary profession and also a square deal to animals in Northern Ireland. The evil dealt with by the Bill was not a widespread one, but it was a Bill in favour of the animal. It was not the intention of the Bill to interfere with the ordinary treatment of animals and it was not a vexatious attempt to obstruct the animal owner, but was designed to assist him. She understood that there were districts where there was no qualified veterinary assistance, and she believed that the interests of people in those districts could be safeguarded. She hoped the House would consider the Bill favourably, reserving the right of amendment.

Mr. P. O'Neill, in moving the rejection of the Bill, said that the cattle doctor should be allowed to practise without interference by that House. The passage of the Bill would be a monstrous injustice to the farmer. He could not understand why the Bill had been introduced by a member of the Nationalist Party, which had not been consulted and which would not support the Bill. He moved its rejection.

Mr. James F. Gamble seconded the rejection. As a farmer of great many years' experience, he believed that if the Bill passed it would interfere with the practice of one farmer helping another.

The Minister of Agriculture said he appreciated Mr. Campbell's continued efforts to protect dumb animals, and said that subject to alterations proposed, the Government would leave the measure to the free vote of the House.

Mr. E. S. Murphy, K.C., said that in its present form the Bill could not be accepted by the House. He could not find that the principles of the Bill had been accepted by the Imperial House. He was not against the spirit of the Bill. He believed that in its present form it would lead to a great deal of trouble for the farmer and stockowner.

Mr. Arthur Black, K.C., thought that legislation on the subject was necessary, but the Bill had inherent defects.

Premier's Suggestion

The Prime Minister said he had studied the Bill very carefully, as he did all Bills with a humanitarian object such as lay behind those introduced by the hon. member. The House had quite wisely on two occasions given him (Mr. Campbell) the privilege of introducing and passing into law two Bills for which the country, he thought, was grateful. He might say in connection with the Birds Bill that it had excited the envy of many other countries, as it was far superior to anything they had thought of. He mentioned this because he did not think the House would like to turn down the hon. member in his attempt to go further along the line he took in his other two humanitarian Bills, and therefore he suggested that he might withdraw the present measure in view of the discussion and objections that had been raised, and he (the Prime Minister) felt sure that if he could on a later date introduce a Bill which met the objections raised, the House would facilitate him in carrying out the good work.

Mr. Campbell, with the leave of the House, withdrew the Bill.

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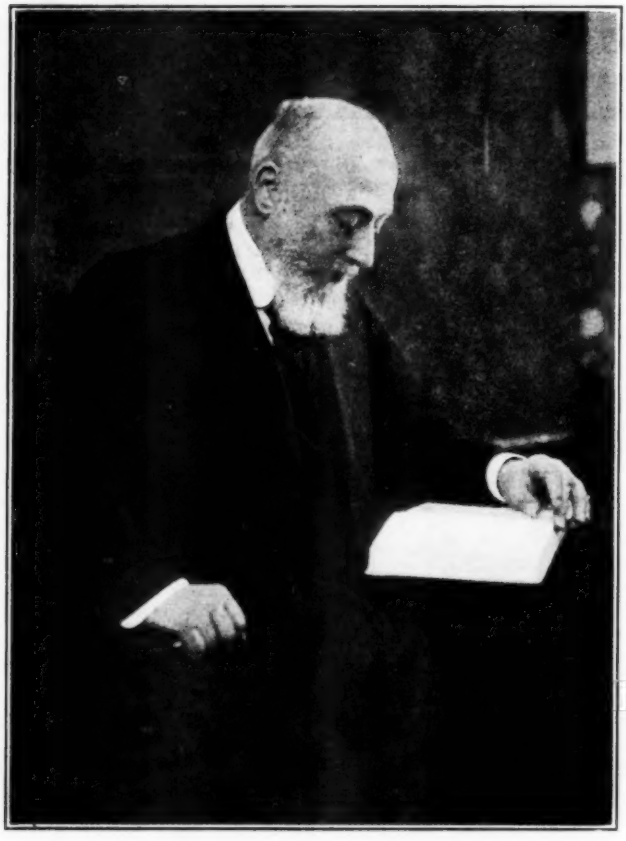
OBITUARY

Professor Paul Dechambre (1868-1935)

The many friends, acquaintances and those in Great Britain, probably more numerous, with whom he corresponded, will learn with deep regret of the death on February 13th, 1935, of Professor Paul Dechambre of Alfort. The services he rendered to agriculture and to the veterinary profession throughout the world are ended.

Dechambre entered the Alfort School in 1885, and graduated with high distinctions in 1889. He had been early impressed by the work of Baron and by his intellectual attainments, and within a few years was firstly tutor and later chief assistant in the department of Zootechnie



Professor Paul Dechambre.
(1868-1935).

at Alfort. Subsequently, in 1897, he transferred to the chair of Zootechnie in the National School of Agriculture at Grignons, where he worthily followed no less an authority than Sanson, and where he earned for himself a place in the esteem of his colleagues. He did not sever his connections with Alfort, however, and in 1908, when his former guide and friend—Baron—resigned, it was Dechambre from amongst many brilliant applicants who was selected to follow him.

From this time onwards, practically until the time of his death, Dechambre's influence upon veterinary and agricultural education in France, as well as upon those engaged in allied activities, was profound.

He was noted especially for his methodical, lucid and precise system of lecturing, for his intense interest in new methods or discoveries, and for his undoubted capacity to seize upon and translate those essentials of scientific investigation which could be applied in practice to the breeding and feeding of farm animals. His teaching duties, heavy though these were, could not prevent him from publishing a series of works of which any man might be proud. Among these are:—

Eléments d'Hygiène et de Zootechnie (with Rossignol) 1893-94;
Zootechnie générale, 1899;
Les aliments du Cheval (with Curtot), 1903;
La production chevaline en France (with Rossignol) 1906;
Les aliments du Bétail, 1906;
La Vache laitière, 1907;
Traité de Zootechnie:—
Tome I.—Zootechnie général, 1911;
Tome II.—Les Equidés, 1911;
Tome III.—Les Bovins, 1913;
Tome IV.—Le Chien, 1921;
Tome V.—Le Porc, 1924.

His contributions to scientific journals and periodicals were numerous and always impressive, while he founded and edited till his death the *Revue de Zootechnie.*

His own personal research, in particular on methods of feeding, on breeding and genetics, on animal management and animal production, conducted in the laboratories of the Station of experimental Zootechnie which he established, are sufficiently well-known to need no enumeration.

But undoubtedly his more important contributions are those he made to the science of comparative ethnology. He travelled widely in France and her colonies and in many foreign countries, both as a private investigator, and frequently as official government delegate or representative, acquiring wherever he went a reputation for keen mental vision, sound common sense, and deep scientific knowledge. He combined in himself the rare qualities of scientific ability and the capacity to transmit information in popular language. He was equally at home in the Councils of learned societies and in the meetings of farmers and breeders.

His activities did not pass without recognition. Among the honours and distinctions he held were the following: Doctor (*honoris causa*) of the Faculty of Medicine of the University of Berne; Officier de l'Instruction publique; Officier de la Légion d'Honneur; Commandeur du Mérite agricole; Commandeur du Mérite Agricole d'Espagne; Commandeur de l'Ordre de la couronne de Roumainie. He was a member and office-bearer of many veterinary and other societies, and to them all he brought those qualities of benevolence, charm, tolerance of the difficulties or foibles of others, and wisdom, which so much endeared him in the hearts of those he met.

He retired in 1933 from his duties at Alfort, officially severing thereby a long connection with his *Alma Mater,* but he continued to work, even in spite of the handicap of failing health, right up to the day of his death. He was busy outlining a new scheme of work with Professor Letard the day before his death, apparently in his usual health, and with his usual energy. On February 13th he actually presided at a meeting of the Association Centrale, and on leaving in his car, peacefully and quietly passed away.

The members of the veterinary and agricultural professions in France, and we in Britain no less than they, mourn his loss, but his example will be a stimulating reminder to all who knew him.

W. C. M.

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M. Renaudel

The Paris correspondent of *The Times,* in the issue of that paper of April 2nd, reports the death of M. Pierre Renaudel, a French veterinarian who studied at the Alfort College but did not practice his profession, contact with the Socialist Party having taken him into politics and journalism at an early age. M. Renaudel was, in fact, one of the most prominent figures in the French Parliament, and was for many years the leader of the Right wing of the Socialist Party. He was one of the best orators in the French Parliament, in which Institution and the Senate there are many veterinary surgeons.

On the death of Jaurès he became editor of the *Humanité* and continued in that position until November, 1918. Subsequently he joined the staffs of the *Populaire* and *Quotidien*, and founded *La Vie Sociale*, a Socialist weekly. Having joined the Socialist Party in 1899, he at once took an active part in its affairs both as speaker and as party manager. In 1914 he was returned to the Chamber as Deputy for a Toulon constituency and at once became an industrious committee man, serving throughout the War on the Army Committee and the Committee of Control, and later on as *rapporteur* for the Air Estimates and as chairman of the Suffrage Committee.

A difference of views between him and his followers on the one side and the more orthodox Marxist Socialists on the other led to an open breach at the party congress at Clermont-Ferrand in 1926, and in the following year he resigned from the party executive as the result of a vote of censure. This was really the beginning of the split that led to his ultimate secession from the Socialist Party and the foundation of the Socialistes de France or Neo-Socialist group, though at that stage "Nationalist" Socialism had not become a question of practical politics in France. Indeed, Renaudel was and remained one of the most pronounced opponents of the Italian form of Fascism, and created a sensation at Geneva in 1932 when, as French delegate to the inter-Parliamentary Union Congress, he attacked it in terms that provoked the Italian delegates to demand an apology. To this demand he retorted that he did not propose to apologise to the Government that had executed Matteotti, whereupon the congress dissolved in disorder and the Italians left Geneva.

In February, 1933, he supported M. Daladier's Cabinet to the extent of voting the military credits, and therewith broke with one of the most sacred conditions of the Socialist Party.

Renaudel ceased to be active in political and Parliamentary life about a year ago. In a moving encomium delivered in the Chamber on April 1st, the President, M. Fernand Bouisson, himself for many years associated with Renaudel in the Socialist Party, described him as a great Parliamentarian, and paid a tribute to the incontestable sincerity with which for 35 years he had insisted upon the need for conciliating democracy and Socialism.

The Late Professor Sharpey-Schafer

An Appreciation

Dr. Henry Dryerre, of the Biochemical Department, Animal Diseases Research Association, writes, in reference to the late Professor Sharpey-Schafer, whose death was recorded in our last issue:—

"It was my privilege to serve for a number of years under the late Professor Sharpey-Schafer, but I feel that no tribute of mine is required to add to the esteem in which his memory is held throughout the world.

"During the time in which I was a Lecturer in his Department I was given leave in order to undertake my duties as Professor of Physiology in the Royal (Dick) Veterinary College, and this link brought Schafer into closer contact with the veterinary sphere. He showed great interest in the application of comparative physiology, and we had many discussions on the subject. He frequently asked me to give Addresses to the Edinburgh University Physiological Society on subjects of veterinary interest. At the close of an Address dealing with the digestion in the ruminant he jocularly remarked to the students that they should consider themselves lucky, when compared with their veterinary confrères, in that they would have only one stomach to worry about in their patients.

"During that time my colleague, Dr. J. Russell Greig, and I were conducting our investigations into the cause of milk fever and Schafer evinced great interest in the gradual evolution of the hypocalcæmic theory. He freely put at my disposal the facilities of his laboratories for carrying out the biochemical work.

"Schafer's knowledge of his subject made him a candid and fearless critic and he had an amazing faculty for seeing immediately the weak point in an argument. To have served under him was to have received a training in that critical procedure and scientific observation which form the basis of sound research. Assistants from Schafer's Department have proceeded to occupy Chairs of Physiology all over the world, and there must be many veterinary practitioners to-day who can look back with pleasure to the time when they had the privilege of listening to his inspiring lectures."

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R.C.V.S. OBITUARY

Ward, Herbert Stanley, Bandons, Anstey, Buntingford, Herts. Graduated London, July 14th, 1905. Died April 8th, 1935; aged 55 years.

We regret to record that Mr. Ward, who latterly had been in business as a farmer, and Mrs. Ward, were found dead in bed at their home. Mr. Ward recently gave up his farm of 300 acres and went to live in a cottage in the village.

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CAPTAIN ADRIAN JONES HONOURED

Sculptors' Society's Gold Medal

On the occasion of the annual dinner of the Royal Society of British Sculptors, held on Tuesday night at the Hyde Park Hotel, Knightsbridge, Sir William Reid Dick, the president, who was in the chair, during the evening presented the society's gold medal to Captain Adrian Jones, M.V.O., M.R.C.V.S., Hon. Associate, R.C.V.S. Captain Adrian Jones, who is a nonagenarian, received the medal in person and made a speech in thanks for the honour bestowed upon him.

In our issue of December 30th, 1933 (Vol. xiii, No. 52, pp. 1418-9) we had the privilege of reviewing the career and outstanding works of this great veterinarian-sculptor, who, it will be remembered, received his Diploma of Honorary Associate from the hands of the Acting President of the Royal College of Veterinary Surgeons at last year's Annual General Meeting.

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PERSONAL

Appointments.—The following Colonial Veterinary Service appointments are announced: Mr. J. B. Polding, B.Sc., M.R.C.V.S., as Veterinary Pathologist, Malta; Mr. R. N. Twisleton-Wykeham-Fiennes, B.A. (Cantab.), M.R.C.V.S., to be Veterinary Officer, Uganda.

Mr. Thomas Johnston, M.R.C.V.S., D.V.S.M., of the Veterinary Department, Melbourne Street, Glasgow, has been appointed to the vacant post of Assistant Veterinary Officer under the Durham County Council.

Birth.—King: At 23, Woodfield Avenue, S.W.16, on April 8th, to Effie Maude, wife of H. C. P. King, M.R.C.V.S., a daughter.

Ascoli: On April 4th, to Mr. and Mrs. E. W. Ascoli, of 3, Ebberly Lawn, Barnstaple, Devon—a son.

REGISTRATION AND REGULATION OF OSTEOPATHS BILL

Select Committee's Enquiry

(*Continued from page* 413.)

The Select Committee of the House of Lords on the Registration and Regulation of Osteopaths Bill met on Friday of last week for the tenth sitting, when the case of the British Medical Association in opposition to the Bill was concluded.

Sir Morton Smart, late medical officer in charge of the electrical department of the Hospital for Sick Children, Great Ormond Street, was called on behalf of the British Medical Association. He said that he had a large practice in manipulative surgery. He did not accept the theory of osteopathy, and had never found any scientific basis for it. It would be almost impossible not to prove it if it were true, and he had seen no evidence whatever that it was true.

The untruth of the claim of osteopathy to cure acute diseases could be clearly demonstrated in connection with infectious diseases. There was overwhelming evidence, both in America and in this country, that osteopaths, while trying to adhere to their original theory, had wandered far from it, and now used every method of treatment known to scientific medicine. From that he adduced that the osteopaths themselves had realised that the osteopathic lesion could not be the cause of disease, and that in the treatment of disease under osteopathy they had to take every other method they could lay their hands on to get results.

The people who had been successfully treated by osteopaths were mainly those who might be called the *vox populi*. Opposed to them there was a large number of people who had been to osteopaths and had not been successfully treated.

Lord Elibank (a member of the Committee): Would you not apply that to doctors, too?

Sir Morton Smart: Decidedly. It bears out my point that it is not due to successes that a treatment is scientifically assigned.

Sir Morton Smart, in further evidence, said that if registration were granted to osteopaths merely because of a popular demand, chiropractors, nature curers, and Christian Scientists could not be refused it, as they were as numerous as osteopaths. It would be intolerable that diplomates of the British School of Osteopathy should be placed on a register after the evidence they had heard at this inquiry about the school.

Mr. Thorpe said that Dr. Macdonald, in his evidence, had stated that he did not regard the standard of the British School of Osteopathy as satisfactory.

Sir Morton Smart, cross-examined by Mr. Thorpe, said that osteopathy was manipulative surgery in practice, but not in theory.

Mr. Thorpe: So far as the practice is concerned, are you doing the same as Dr. Macdonald or Mr. Streeter?—Certainly, so far as Dr. Macdonald is concerned.

The case for the British Medical Association against the Bill was closed.

Sir Farquhar Buzzard, Regius Professor of Medicine, Oxford (recalled), completing the evidence which he opened at an earlier sitting, in opposition to the Bill, on behalf of various universities and medical schools, said (in reply to Lord Esher) that he agreed that medicine was now securely based on science and that there was a time when it was based on bleeding and drug-giving and was unscientific.

Lord Esher: Was it then a danger to the public?—Yes.

But it would have have been a pity to discourage it?—Yes.

Yet that is what you are proposing to do to osteopaths?—Yes.

The witness did not agree that the fact that many people had been cured by osteopathy was *prima facie* evidence entitling it to be investigated by scientific bodies. If that were so, he added, every quack medicine would have to be investigated because of the claims which were set out on the bottle.

Lord Dawson: There seems to be an idea that the medical profession should go out into the highways and hedges and find out what people are thinking. There are tribunals of complete freedom where any new idea can be brought before the medical profession. Is there any evidence that there has been such an application to any recognised society of scientific people by the osteopaths?

Sir Farquhar Buzzard: No. I have no knowledge whatever of any such application.

Lord Dawson: The crucial difference between manipulative surgery and osteopathy is that manipulative surgery confines itself to a delimited area, whereas osteopathy claims all diseases. Is that the reason why it is so necessary to oppose the claims of osteopathy?

Sir Farquhar Buzzard: Absolutely.

(*The enquiry continues.*)

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ROYAL SOCIETY OF MEDICINE: SECTION OF COMPARATIVE MEDICINE

A meeting of the above section devoted to short papers was held at the Society House, 1, Wimpole Street, W.1, on Wednesday, March 27th, at 5 p.m., the President (Professor J. B. Buxton) being in the chair.

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Lymphomatosis of the Fowl (Fowl Paralysis)—C. L. Oakley

Dr. Oakley reviewed the clinical, *post-mortem* and histological features of the condition generally recognised as fowl paralysis and, emphasising the fact that, in an affected flock, birds may only show one of the typical groups of symptoms, put forward the view that the disease is much more widespread than is usually believed. He stated that nearly 50 per cent. of all fowls which he received for diagnosis showed one or other of the typical lesions, macroscopic or histological. He concludes: (1) That the nervous, visceral and ocular lesions are all manifestations of the same disease process, and that the term fowl paralysis might therefore very well be dropped and replaced by lymphomatosis.

(2) That the weight of evidence is in favour of the neoplastic origin of the disease.

(3) That the possible hereditary basis of the disease should be further investigated; with the practical corollary of providing if possible a resistant breed.

. . . . .

"Some Fallacies in the Diagnosis of Helminthic Disease."—E. L. Taylor

Mr. Taylor pointed out that special methods of concentrating the eggs in a sample of fæces, such as flotation methods, gave an altogether false impression of the degree of infestation, and moreover gave inconstant results. Secondly, that the method of measuring infestation by determining the actual number of eggs per gm. of fæces and of knowing the usual number of eggs passed by a female of a given species, calculating the probable number of worms present, was also fallacious, because the number of eggs passed by a given female varied from time to time and

particularly was decreased after anthelmintic treatment. Finally that, although a small number of certain worms undoubtedly were harmful, a large number of others, *e.g., Davainea proglottina* and *Heterakis gallinæ* of poultry were of little importance. More study was needed on the pathological approach to the subject as opposed to the purely biological, before we could estimate the importance of small or large numbers of the different helminths.

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A Differential Character of *C. welchii* Type D.—T. J. Bosworth and R. E. Glover

Mr. Glover said that it had been found that when known amounts of liquid or precipitated Welch toxin type "D" were added to filtrates of normal lamb intestinal contents, the mixtures were more toxic for mice (intravenous or intramuscular injection) and for guinea pigs (intradermal injection) than toxin in normal saline solution. The effect was not produced with *C. welchii* types "A," "B" and "C" respectively. This reaction was apparently due to a combination of the heat stabile factor in type "D" toxin with a heat labile factor in intestinal filtrate. "D" antitoxin afforded complete protection against these mixtures, while the amount required to neutralise a given dose of toxin plus intestinal filtrate was the same as that necessary for an equal amount of toxin only in spite of the greater toxicity of the combined product.

In certain cases of enterotoxæmia in which the toxin of *C. welchii* type "D" is found in the alimentary tract, the determination of the M.L.D. for mice might lead to the impression that a larger amount of toxin was present than was actually indicated by toxin and antitoxin tests.

A. W. Stableforth
(*Hon. Secretary, Comparative Section.*)

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CATTLE DISEASES REPORT CONFERENCES

A series of conferences is being arranged by the Ministries of Health and Agriculture and the Scottish Department of Agriculture to consider the findings of the Economic Advisory Council's committee on cattle diseases.

It is understood that the problems which will be discussed will include that of the compulsory pasteurisation of milk.

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H.M. STATIONERY OFFICE PUBLICATIONS

The undermentioned have been published recently. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses: London: Adastral House, Kingsway, W.C.2, and 28, Abingdon Street, S.W.1; Cardiff: 1, St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120, George Street.

	Price Net. s.	d.	*Post Free.* s.	d.
Statutory Rules and Orders, 1935:—				
164. Anthrax. Order in Council, dated February 21st, 1935, under the Anthrax Prevention Act, 1919, regulating the Importation into Great Britain of Goat Hair and Goods mixed therewith. (Published March 12th, 1935)	0	2	0	2½
184. Anthrax. Fees for Disinfection. Rules, dated March 8th, 1935	0	1	0	1½
187. Public Health, England. The Public Health (Meat) Amendment Regulations, dated March 11th, 1935	0	1	0	1½
Health, Ministry of:—				
Circular 1461. Public Health (Meat) Amendment Regulations, 1935. To Sanitary Authorities (England and Wales). March 18th, 1935 (33-9999)	0	1	0	1½
Labour, Ministry of:—				
Choice of Career Series:—				
No. 3. Veterinary Surgery. (36-9999) ...	0	2	0	2½

H.M. Stationery Office (Belfast) Publications

The undermentioned have been published on behalf of the Government of Northern Ireland. Copies can be purchased directly from H.M. Stationery Office, at the following addresses: Belfast: 80, Chichester Street; Edinburgh: 120, George Street; Manchester: York Street; Cardiff: 1, St. Andrew's Crescent; London: Adastral House, Kingsway, W.C.2, or through any Bookseller.

	Price Net. s.	d.	*Postage.* s.	d.
Public and General Acts:—				
Dogs' Protection	0	2	0	2½
Milk and Milk Products ...	0	6	0	6½
Diseases of Animals (Dairy Cattle)	0	3	0	3½
House of Commons Bill:—				
9. Veterinary Surgery ...	0	2	0	3½

Irish Free State Publications

[The Publications in this List may be purchased from the Government Publications Sale Office, 5, Nassau Street, Dublin, C.2.]

	Price Net. s.	d.	*Postage.* s.	d.
Bills:—				
42b/34. Sale of Food and Drugs (Milk) Bill, 1934:—				
As passed by the Oireachtas	0	2	0	0½
59/34. Milk and Dairies Bill, 1934:—				
As introduced	0	6	0	1½
Statutory Rules and Orders, 1935:—				
381/34. Horse Breeding Act, 1934 (Appointed Day) Order, 1934	0	1½	0	0½

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SPEEDOMETER TESTS FOR MOTORISTS

The Automobile Association is introducing throughout the country a service enabling motorists to check the accuracy of their speedometers on the road.

A fleet of cars with specially checked speedometers, in charge of A.A. officials, will operate on various unrestricted roads. The front and rear of each car will display conspicuous notices inviting motorists to check their speeds against the A.A. speedometers. Ultimately every A.A. patrol's motorcycle combination will be similarly equipped to enable members to carry out periodical tests whilst on the road.

The Association is also arranging to indicate by special notices, at a number of important

points on main roads, a series of "measured miles" so that motorists can time their speeds for comparison against the reading of their speedometers.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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IS "GRUNTING" AN UNSOUNDNESS?

To the Editor of The Veterinary Record

Sir,—Dr. Bullock's admirable paper read before The Central Veterinary Society has induced me to write on a condition, met with in the examination of horses for soundness, which is and always has been as long as I can remember, the cause of great divergence of opinion amongst our members. There are many eminent veterinary surgeons who hold that "grunting" is an unsoundness and definitely say so in their certificates, and there are many equally eminent who hold that this condition which fails to produce any further respiratory sound after a severe test for the wind, is not an unsoundness. Here I would like to quote samples of the various certificates I have seen:—

(1) "This animal 'grunts at the stick' and is therefore unsound in his wind."

(2) "This animal 'grunts at the stick.' In all other respects I consider him sound."

(3) "This animal 'grunts at the stick,' but after a severe test I failed to detect any unsoundness in his wind. I therefore consider him sound in that respect."

(4) "This animal 'grunted' when threatened, but when galloped he did not show any respiratory unsoundness, therefore I consider him sound in his wind."

How are we to reconcile these two opposite opinions? Naturally a judge who was adjudicating in a "breach of warranty" action involving "soundness of wind" where an equal number of witnesses were called on either side, would be in a quandary and therefore would place little value on the expert evidence.

There are horse respositories at which a certificate that a horse is a "grunter" as a cause for return as not answering the warranty of a "good hunter" will be accepted, whilst at others such a certificate will not be accepted without the specified term that the said animal is either a "whistler" or a "roarer."

Now what is the position? Is an examining veterinary surgeon entitled to say that a horse is unsound in his wind, although a "grunter," providing he submits the animal to a severe test and fails to get any respiratory response? Naturally he would notify his client that "grunting" is usually a precursor of unsoundness and warn him to that effect; but, on the other hand, many of us who are constantly examining horses have known of animals that have consistently grunted when threatened, yet have remained sound in their wind for many years. Nothing in our text-books, as far as I can trace, has laid down any hard and fast rule. Personally, I should hesitate to say a horse was unsound in his wind if (although he was a grunter) I failed to get an adverse respiratory response, although in a covering letter I should naturally advise my client as to the risk.

I am raising this question with an open mind, with a view that the profession might arrive at a definite decision.

I am,
Yours faithfully,
J. Willett.

1, Marylebone Road,
N.W.1.
April 6th, 1935.

The Editor acknowledges, with thanks, the receipt of the following:—

Communications from Mr. N. S. King and Miss O. Uvarov (London).

Diseases of Animals Acts

SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic§ Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 16th to 31st March, 1935	25	27	—	—	1	2	17	72	20
Corresponding period in									
1934	22	24	1	31	6	13	18	66	33
1933	16	17	7	653	6	10	8	49	21
1932	22	22	—	—	2	2	11	88	39
Total 1st January to 31st March, 1935	121	132	22	4,690	49	68	151	409	155
Corresponding period in									
1934	123	125	1	31	65	112	282	429	242
1933	107	127	54	5,161	68	128	175	246	89
1932	117	146	1	67	60	106	106	537	232

Note.—The figures for the current year are approximate only.

§ Excluding outbreaks in Army Horses.